PREHISTORIC MAN

GEORGE S. DUNCAN, PH.D.

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An Introduction to Anthropology

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BY

GEORGE S. DUNCAN, PH.D.

Professor of Egyptology and Assyriology
in the
American University, Washington, D. C.

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"In the beginning God created the heavens and the earth." *Genesis 1:1.*

"First the blade, then the ear, then the full grain in the ear." *Mark 4:28.*

"Consider history with the beginnings of it stretching dimly into the remote time, emerging darkly out of the mysterious eternity. The true epic poem and universal divine scripture." *Thomas Carlyle.*

Preface

THERE is a very general interest in prehistoric man. This is largely due to the many and varied remains of early man brought to light by archæology. The pick and spade are unearthing so much which is claiming the attention of people. All this knowledge now constitutes a very extensive domain. Scholars are compelled to confine their studies to special subjects, so vast has become the territory covered by prehistoric man.

The present volume aims to give a bird's-eye view of the whole field. The varied topics discussed must thus necessarily be briefly treated; but it is hoped enough has been said to clearly show the lay of the land. Where scholars are not agreed, the differing views are given. For those who care to pursue the subject more fully, a bibliography of the more important recent books is given in the appendix.

GEORGE S. DUNCAN.

The American University,
Washington, D. C.

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Part I

DIVISIONS AND SOURCES

CHAPTER I

Divisions

HUMAN history is commonly divided into a prehistoric and a historic period. The division is usually made about 5000 B.C. All before this date is called prehistoric because there are no written documents. The time after 5000 B.C. is styled historic since written sources are found. The terms prehistoric and historic are not very happy because prehistory rests on documents, which, while not written, may be just as trustworthy as the written sources of the historic period. G. Elliot Smith says:[1] "But the term 'prehistoric,' and especially the unpardonable word 'prehistory,' must be renounced, or used only in the most general sense, by all who value clearness of thought and precision of statement."

It should also be noted that there is no fixed limit between prehistory and history. One gradually merges into the other. F. J. Teggart writes:[2] "By insensible degrees the historian has come to see that there is no hard and fast boundary be-

[1] G. Elliot Smith: *Essays on Evolution of Man*, 1924, p. 47.

[2] F. J. Teggart: *Prolegomena to History*, Univ. of Cal., Publications in History, vol. 4, p. 124.

tween historic and prehistoric times; the history of man includes man everywhere and at all times."

In this book we have to do only with the prehistoric period which is divided into a palæolithic, or old stone age, and a neolithic or new stone age. The division is made on the basis of the artifacts or products of man's handiwork. The palæolithic artifacts are rude, being made by chipping, percussion or pressure. Those of the neolithic period are of finer workmanship and are made by rubbing, polishing or grinding. The old stone age ends about 10000 B.C., and extends back to the earliest traces of man upon the earth. The new stone age comprises the period from 10000 B.C. to 5000 B.C.

CHAPTER II

Sources

THE sources of our knowledge of prehistoric man are, as we have seen, unwritten. They consist of tools, weapons, utensils, paintings, sculptures and many other objects made by man. There are also human and animal remains. All these are found in caves, quarries, mines, gravel beds and graves. Lake dwellings, chiefly in Switzerland, have furnished many traces of early man. His artifacts fell into the water and are now being dug up. In

Denmark there are numerous kitchen middens which are dump heaps with refuse containing a variety of objects indicating human habitation. In certain parts of Europe there are stone remains of great size. Well known examples can be seen at Stonehenge in England and at Carnac in France.

Important information about prehistoric man is being derived from present day peoples still living in stone age cultures. These are found among the aborigines of Australia, New Zealand, New Guinea, Borneo and of Central Africa. Such peoples represent an arrested development. They have never advanced beyond the cultures represented by our forbears in the prehistoric periods. J. Lubbock calls his book: *Prehistoric Times as Illustrated by Ancient Remains and the Manners and Customs of Modern Savages.*

Part II

THE UNIVERSE AND EARTH

CHAPTER I

The Universe

VERY great progress has been made, in recent years, in our knowledge of the universe. This is due to several causes. We now have greatly improved instruments such as telescopes, microscopes and photographic apparatus. There has also been wonderful advance in such sciences as astronomy, chemistry, physics, geology, biology and other allied sciences.

The universe comprises the sum total of all creation. The stars are suns, and some 6000 can be seen by the unaided eye. About 1,000,000,000 have been photographed. The total theoretical number of stars has been put at 30,000,000,000 by C. G. Abbot. Our sun is situated fairly near the center of the stars comprising the known universe. It is mediocre in size and brightness. Alpha Centauri, the nearest star to us, is so far away that it takes its light four years to reach the earth. Light travels at the rate of 186,000 miles per second. The largest known star is Alpha Scorpii. It has a diameter of about 400,000,000 miles according

to G. E. Hale. The diameter of our sun is 866,400 miles.

CHAPTER II

The Earth

THE earth is one among the planets which, together with the sun, constitute our solar system. The following facts about the solar system may be of interest:

Planet	*Diameter in Miles*	*Distance in Millions of Miles from Sun*
Mercury	3030	36
Venus	7700	67
Earth	7918	93
Mars	4230	141
Jupiter	86500	483
Saturn	73000	886
Uranus	31900	1782
Neptune	34800	2792

The moon is a secondary planet about one-eighth the size of the earth. It is 240,000 miles from the earth. Uranus and Neptune can be seen only by a telescope. The question is often asked whether the planets are inhabited. An eminent astronomer, H. N. Russell of Princeton University believes that there is no life on any of the planets except Mars which may have vegetation because green areas on this planet can be seen to change with the Martian seasons.

CHAPTER III

The Origin of the Earth

THERE are two main views regarding the origin of the earth. The older theory is known as the nebular hypothesis advocated in 1796 by Laplace, 1749-1827. It supposes an original hot gaseous mass possessing a uniform rotation just as if it were a solid body. As it cooled and contracted, successive rings of matter were thrown off in obedience to physical laws. These formed the planets, satellites and bodies of our system while a nucleus remained in the center constituting our sun.

The other view known as the planetesimal hypothesis was advanced in 1916 by T. C. Chamberlain, 1843-1928, of Chicago University and his associate F. R. Moulton. It postulates the sun as already in existence and moving in space. It arose from the ingathering of a primal nebula. This was disrupted by tidal forces produced by the close approach and passage of another star. Secondary nebulæ resulted. Due to the rotation of the sun these nebulæ were unable to return to their original relation, and were compelled to start their eternal journey. They later cooled and became the earth and other planets.

CHAPTER IV

The Age of the Earth

It was formerly supposed that the earth—and, indeed, the universe—was created about 4004 B.C. In some old Bibles this date is found on the margin of the first chapter of Genesis. It was worked out by two eminent Biblical scholars, John Lightfoot, 1602-1675, and James Usher, 1580-1656. This chronology was universally accepted until disproved by more recent investigations which show that creation took place at a period so remote that no date can be set except in great round numbers.

Radio-activity, quite recently discovered by Rutherford, furnishes data giving important information regarding the age of the earth. This principle shows that certain elements in nature are unstable and are constantly breaking up into other elements. Thus uranium passes into radium and ultimately into helium and lead which are stable products. The rate of transformation is fixed and is accurately known by experiment. The age of a rock can thus be estimated by measuring the amount of uranium and helium in it. Making every allowance for any inaccuracies in the measurements, it is probably safe to say that the earth

is not less than three billions of years old. We may now read the first verse of the Bible: "In the beginning God created the heavens and the earth" not less than three billions of years ago.

CHAPTER V

Geological Periods

It is usual to divide the history of the earth into five geological periods. These are: I. Paleozoic; II, Mesozoic; III, Tertiary; IV, Quaternary, and V, Holocene. In the first four periods the rocks contain fossils which are very important in revealing the history of life in the earth.

The Paleozoic is the oldest era. It lasted 300 millions of years from 525 to 225 millions of years ago. Six types of rocks are found in this period as follows:

1. *Cambrian* with first traces of plant and animal life.
2. *Ordovician* with cryptogam plants having no stamens, pistils or flowers.
3. *Silurian* with mollusks.
4. *Devonian* with fishes.
5. *Carboniferous* with first coal and land plants and with first reptiles and amphibians which are intermediate between fishes and reptiles.

6. *Permian.*

The Mesozoic is the next era. It lasted 165 millions of years from 225 to 60 millions of years ago. In this age there are three types of rocks as follows:

1. *Triassic.*
2. *Jurassic* with reptiles and first mammals.
3. *Cretaceous* having chalk formation.

The Tertiary is the third period. It lasted 59 millions of years from 60 to 1 million of years ago. There are four classes of rocks:

1. Eocene.
2. Oligocene.
3. Miocene.
4. Pliocene.

The Tertiary is the great era of animals. Some believe that there are traces of man in the Pliocene rocks.

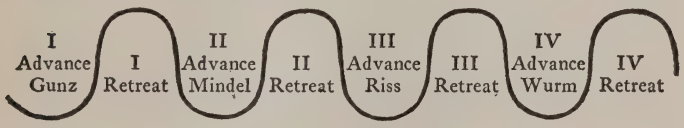
The Quarternary is the fourth period. It began one million of years ago and lasted until about 20000 B.C. There is one class of rock known as Pleistocene. This is the age of man.

The Holocene is the last period. It is often called the recent epoch. It extends from 20000 B.C. to the present time. There are no characteristic rocks. It is supposed that the last ice age ended at the beginning of this period.

CHAPTER VI

The Ice Age

THERE was a long period when the ice descended from the north four times and retreated four times. This ice age may be represented by a wavy line as follows:



The four advances are named Gunz, Mindel, Riss and Wurm. These are the names of four little rivers rising in the Alps where vestiges of the advances are found. The periods between the advances are called retreats. We are now living in the fourth retreat. The retreating ice left rocks, clays, gravels and sand. Basins were gouged out where lakes and valleys now are. In this way the numerous lakes in Maine, New York and Minnesota were formed.

The rate of movement would depend on the nature of the land. If hilly or mountainous it would be slow. If the land was level or steep the movement would be more rapid. The rate of glaciers today is about as follows: in Switzerland, one inch to four feet per day; in Alaska, seven feet; in Greenland, fifty to sixty feet, and occasionally one hundred feet in the height of summer.

The area covered by the ice sheet embraced large parts of North America and Northern Europe. In North America it descended as far as Long Island, northern New Jersey, southern Pennsylvania, Cincinnati, Ohio, St. Louis, Missouri, northeast Kansas, northwest Nebraska, South Dakota, southwest in North Dakota and to Vancouver Island. There were two projecting tongues of ice in western Montana, Washington and Oregon. In general the line of descent would be from Long Island on the Atlantic 41° north latitude to Vancouver on the Pacific 49° north latitude. In Europe the ice sheet covered the British Isles as far as the Thames, Cologne on Rhine, Hartz Mountains in central Germany, the 50° parallel of north latitude as far as the Caspian Sea, and then north along the Ural Mountains to the Arctic Ocean.

The ice age occurred in the quaternary era. Its duration has been variously estimated. The figures, given by Pilgrim for the length of the various advances, are as follows: I, 300,000 years; II, 170,000 years; III, 230,000 years; IV, 190,000 years. The duration of the retreats are as follows: I, 80,000 years; II, 190,000 years; III, 130,000 years; IV began about 20,000 years ago and continues to the present. The total duration according

to Pilgrim would be 1,290,000 years, not counting the IV retreat. Other scientists like Hildebrandt and Obermeier give much smaller figures. The problem is extremely difficult and probably can never be solved with certainty.

The land occupied by prehistoric man during the ice age would be of three kinds:

I. Tundra, a Russian word, meaning a moist, marshy plain such as is found today in northern Canada and Siberia. The animals were the reindeer, muskox and woolly mammoth.

II. Steppe or prairie consisted of level plains with grass but devoid of forests. The animal was the horse.

III. Forest and meadow land. The animals were the deer, wolf, bear, wild boar and cattle.

The climate of the ice age would be tempered by proximity to the ocean. The average temperature would be about 39° to 43° Fahrenheit. There was a heavy snowfall. The climate was very damp. No satisfactory cause for the ice age has as yet been given. Several have been suggested. The earth's axis may have changed so that the pole travelled 15° to 20°. There may have been variations in the heat of the sun. Elevations and depressions of continents may have taken place.

CHAPTER VII

The Interior of the Earth

FORMERLY it was supposed that the interior of the earth was a molten mass. Volcanoes were regarded as the vent holes from this central fire. Recent investigations, however, have shown that the earth has a metallic center of great density which is due to the tremendous pressure from the material above it. The density of the interior is probably also in part due to substances heavy in themselves since the core is probably made up of iron. The heat, near the surface of the earth, is caused by chemical action, friction from movements of the rocks, but chiefly from radio-activity. Volcanoes are superficial phenomena. The seat of their activity is probably not more than six miles below the surface. The liquid lava is due to the release of pressure on masses of rock heated above the melting point. Such lava finds an opening to erupt wherever there is a fault in the rocks of the earth's surface. Such faults exist around the shores of the Pacific. Hence volcanoes and earthquakes are apt to occur there.

CHAPTER VIII

The Ultimate Nature of Matter

MATTER was formerly supposed to be made up of molecules and atoms. This view has now given

place to the belief that matter is composed of two fundamental units, electrons and protons, bound together by radiation or light. Of these, an eminent scientist, M. I. Pupin of Columbia University, has said: "There is just one mystery in the electrical science and that is where, when and how the tiny electron and its fond partner, the proton, came into existence. The sensible man will say, God created them, and God only knows when and where." This is simply another way of saying: "In the beginning God," Genesis 1:1.

Part III

REMAINS, ORIGIN AND BIRTHPLACE OF PREHISTORIC MAN

CHAPTER I

The Remains of Prehistoric Man

THE oldest fossil remains, thus far found, may be grouped in five divisions. Each division represents a distinct human type. Experts with tolerable accuracy are able to reconstruct these men from the parts found. All is done in a scientific manner so that the results probably closely resemble what the originals looked like.

The Java man, *pithecanthropus erectus,* lived about 500000 B.C. He was found near Trinil on the island of Java by Dr. Dubois during 1891. The remains are now in the Teyler Museum, Haarlem, Holland. His height was about five feet six and a half inches. His brain capacity was 900 cubic centimeters. Formerly the Java man was called an ape man, one-half man and one-half sub-man. He is now, however, judged to be definitely human by leading scientists who have made a recent and exhaustive study of the remains.

The Heidelberg man, *paleoanthropus heidelbergensis,* existed about 250000 B.C. His remains were found in 1907 at a depth of 82 feet in the Mauer quarry 6¼ miles from Heidelberg, Ger-

many. The remains are now in the Heidelberg University museum. The brain capacity is about 1000 cubic centimeters. The jaw is very primitive, heavy and clumsily constructed. The teeth are human, but larger than those of modern man.

The Piltdown man, *eoanthropus dawsonis,* is dated 100000 B.C. He was found by Charles Dawson in a quarry four feet below the surface in Piltdown Common, Fletching, Sussex, England, in 1911. The brain capacity is about 1300 cubic centimeters. As the skull fragments were badly damaged and scattered by workmen before they came into scientific hands, there has been much controversy as to the nature and age of the Piltdown man. Rudely worked flints were found along with the remains. The Piltdown man can now be seen in the British Museum, London, England.

The Neanderthal man, *homo neanderthalensis,* lived about 40000 B.C. He was found in the Neander Valley between Elberfeld and Dusseldorf, Germany, in 1857. The remains were discovered in a cave 100 feet below the plateau and 60 feet above the Dussel River. They can now be seen in the museum at Bonn, Germany. The brain capacity is about 1500 cubic centimeters. Remains of the Neanderthal type have been found in France, Spain, Belgium, Germany, Austria and Palestine. He was about five feet three inches high. His head

was large, long and flat with ape-like brow ridges. He had scarcely any forehead. His neck was very muscular.

The Cro-Magnon man, *homo sapiens,* is dated about 25000 B.C. He was discovered in 1868 in a rock shelter, Cro-Magnon, at Les Eyzies, Dordogne, France. A good many remains of this type of man have been found in other places. His brain capacity runs from 1530 to 1900 cubic centimeters. He was tall, strong, intelligent and artistic. His remains can be seen in the Jardin des Plantes Museum, Paris, France. The Cro-Magnon man should be especially interesting to us for we are all, probably, descended from this type. He is our infinitely great-grandfather of 25000 B.C. The other four types—Java, Heidelberg, Piltdown and Neanderthal,—for unknown reasons, became extinct and have left no representatives today.

CHAPTER II

Prehistoric Man in America

THE antiquity of man in America is, at present, a subject under discussion. Scientists are divided into two camps on this question. The main facts are somewhat as follows: The commonly accepted view has been that the Indians were proto-Mongolians and came by Behring Sea to America not less

than 8000 years ago. There were no human beings on this continent before these red men arrived.

In recent years the belief has been gaining ground that America was the habitat of man long before the Indians arrived. Several lines of evidence are brought forward for this view. Traces of a prehistoric charcoal fire have been unearthed beneath a mastodon in New York state. An arrow head was found in close connection with an extinct bison in Kansas. Human remains discovered in Florida are said to be of equal antiquity with prehistoric man in Europe. In 1914 such were unearthed at Vero, Florida. In 1925 J. W. Gidley of the Smithsonian Institution found a human skull at Melbourne, Florida, in a Pleistocene stratum. Here, also, he uncovered a large stone implement, four feet from the surface and two feet below the upper layer of the ancient formation in which fossil animal bones lie buried. C. P. Singleton of Harvard University, at the same site, came upon a stone arrow or spear point lying directly under the bones of a mastodon. At both Vero and Melbourne the human remains were in close association with the bones of extinct animals.

Discoveries bearing on prehistoric man in America have been made by H. J. Cook, and J. D. Figgins of the Colorado Museum of Natural History at Denver. F. G. Priestly has also assisted in

the work. Three sites have been unearthed. Near Frederick, Tillman County, Oklahoma, these scientists found in a gravel pit three distinct layers of deposits with two arrow heads and seven metates or primitive grinding instruments. There were also remains of extinct animals. Eight feet above the level of the arrow heads and metates remains of a mammoth were discovered. At Lone Wolf Creek near Colorado, Texas, bones of an extinct species of bison were unearthed, and arrow heads were found in the same earth. At Folsom, New Mexico, fossil bones were discovered and among them were two arrow heads. The bones were those of an unknown and extinct species of bison. The age of the deposit is put at late Pleistocene.

In the above mentioned discoveries H. J. Cook feels convinced that the arrow heads were contemporaneous with the animal remains and Pleistocene deposits. Those who oppose this view, suggest that the arrow heads, found with the fossil animals, could have fallen into the layers of earth, deeper and older than the surface layers of their own age. Before a final opinion can be formed we must wait and see what the outcome of the investigations will be. The whole subject is awakening much interest in the scientific world. A. Keith

says:[3] "We have seen no evidence to lead us to suppose that any race preceded the American Indian in the new world." He adds: "The writer feels certain that human secrets still lie hidden in America."

CHAPTER III

Human and Sub-Human

THE question is often asked, how, on the basis of fossil remains, can a human be distinguished from a sub-human? There are four main criteria. The brain capacity in the lowest human type, the Java man, is 900 cubic centimeters, and in the highest type, the Cro-Magnon man, it is from 1530 to 1900 cubic centimeters. The brain of the gorilla and orang is from 500 to 570 cubic centimeters. The average human brain weighs 48 ounces. The brain of the large gorilla weighs 20 ounces. Sir Arthur Keith affirmed,[4] August 1927, that "the only real distinction of a human brain from an anthropoid brain was a quantitative one." It is now generally recognized by scientists that wherever there is life there is mind. This is true of the animal and plant world. In the lowest form of animal life, the unicellular amoeba, there is a very

[3] A. Keith: *Antiquity of Man*, 1925, vol. 2, pp. 483, 484.
[4] A. Keith: *Current History*, vol. 27, p. 102.

rudimentary mind. All plants also have minds. The plant kingdom merges into the animal. The Venus fly-trap is an example of a plant-animal. The United States Department of Agriculture had an exhibit of carnivorous plants in June 1929. It is then probably true that there is an unbroken line of ascent from the lowest mind in plant and animal to the highest mind in man.

Another criterion, in distinguishing man from sub-man, is in the teeth, which in man differ a good deal from the teeth of sub-man. The thickness of the skull furnishes another difference. In man it is from 5 to 6 millimeters; but in the lower creation it is twice as thick, being from 10 to 12 millimeters. A fourth criterion is in the ridge on the brow of the sub-man, but which is not found in man.

CHAPTER IV

The Origin of Prehistoric Man

MAN was formerly considered the product of a special creation like all other life on the globe. Special creation means that God in the beginning made a human pair male and female. From this pair by the laws of generation has the world been peopled. This view was very generally held until 1859 when Charles Darwin, 1809-1882, published

his epoch-making book, *The Origin of Species*. This was followed in 1871 by another volume, *The Descent of Man*. No books, in any age, have so profoundly influenced thought. A. E. Shipley writes:[5] "By far the most important event in the history of biology in the nineteenth century was the publication, in 1859, of *The Origin of Species*. This statement might be strengthened, for the publication of this book changed the whole trend of thought not only in biology, not only in other sciences, but in the whole intellectual outlook of the world." Similarly Quiller-Couch says:[6] "*The Origin of Species* is the biggest book of this century, and a new Gospel for the next to think about."

Darwin was the first great scientific exponent of evolution, which means that the higher forms of life came by development from lower forms. Evolution is descent with modifications. G. B. Smith[7] writes: "The doctrine of evolution has led us to think of the world in which we live and of the history of man in terms of a long and gradual development rather than as originating through a special divine act." There has been great progress in science since Darwin's time. Much new evidence

[5] A. E. Shipley: *Cambridge Hist. of Eng. Lit.*, vol. 14, part 3, 1917, p. 329.
[6] A. T. Quiller-Couch: *Shining Ferry*, 1905, p. 7.
[7] G. B. Smith, editor: *Guide to the Study of the Christian Religion*, 1916, p. 552.

has been discovered which supports evolution. There is a difference of opinion among scientists, today, as to the factors producing evolution. There seems to be absolute agreement as to the fact of evolution.

The seven main reasons for believing in evolution are the following: (1) Comparative anatomy or morphology, the science of structure; (2) taxonomy, the science of classifications; (3) serology, the science of blood tests; (4) embryology, the science of development; (5) paleontology, the science of extinct life; (6) geographic distribution, the study of the horizontal distribution of species upon the earth's surface; (7) genetics, the analytic and experimental study of evolutionary processes going on today. In Darwin's time great emphasis was put upon natural selection or the preservation of favored races in the struggle for life. This still remains a cause but by no means the only or leading cause for believing in evolution.

Evolution is well-nigh universally accepted by all scientific men as the best explanation for the facts of life. The American Association for the Advance of Science with over 1400 members, comprising most of the scientific men of the United States and Canada, affirmed, in December, 1922, without a dissenting vote, the following: "No scientific generalization is more strongly supported

by thoroughly tested evidences than is that of evolution. The evidences for the evolution of man are sufficient to convince every scientist of note in the world." W. B. Scott of Princeton University says:[8] "The whole trend of scientific opinion is strongly in favor of the evolutionary hypothesis." H. F. Osborn of Columbia University writes:[9] "Evolution has long since passed out of the domain of speculation, of hypothesis, and even of theory. It is a law of living nature as firmly and incontrovertibly established as the law of gravitation in respect to the celestial spheres." H. H. Newman of Chicago University says:[10] "The plain truth of the matter is that never before in the history of science has there been so nearly a unanimous acceptance of the principles of evolution." G. H. Parker of Harvard University declares:[11] "Practically all biologists today accept without any reservation descent with modification as a process of nature." J. A. Thomson of Aberdeen University affirms:[12] "The evolution formula fits all the observed data. It is the key that opens all the locks." A. Keith, president of the British Association for the Advancement of Science,

[8] W. B. Scott: *Theory of Evolution*, 1917, p. 1.

[9] H. F. Osborn: *Biblical World*, vol. 41, p. 76.

[10] H. H. Newman: *Contributions of Science to Religion*, edited by S. Mathews, 1924, p. 165.

[11] G. H. Parker: *What Evolution Is*, 1925, p. 62.

[12] J. A. Thomson: *Concerning Evolution*, 1925, p. 53.

says:[13] "We are now able to fill in many pages which Darwin had perforce to leave blank, and we have found it necessary to alter details in his narrative, but the fundamentals of Darwin's outline of man's history remain unshaken. Nay, so strong has this position become that I am convinced that it never can be shaken." O. Lodge of Birmingham University writes:[14] "Evolution is a recognized process: that is truly the way in which things have come and do come into being." It is to such experts that we must look for an authoritative opinion about evolution.

CHAPTER V

Theistic Evolution

SOME have characterized evolution as being atheistic, materialistic, anti-Biblical and anti-Christian. Thus W. J. Bryan says:[15] "I do not distinguish between theistic and atheistic evolutionists; the former are atheists in the making and are doing more harm than atheists because they mislead more. Evolutionists are iconoclasts; they are bent on ridding the world of religion which they regard as a superstition." L. S. Keyser writes an article entitled[16] "Christianity a Contradiction

[13] A. Keith: *Current History*, vol. 27, p. 100.
[14] O. Lodge: *British Weekly*, 11 Nov. 1926, p. 153.
[15] W. J. Bryan: *Forum*, vol. 74, p. 107.
[16] L. S. Keyser: *Current History*, vol. 28, pp. 899-904.

of Evolution." Similar statements have been made by W. B. Riley, T. T. Shields, J. R. Straton and others.

In general those opposed to evolution are clergymen and laymen who do not seem to have made a broad and deep study of the theory. There is hardly an instance of a present-day scientist known to be opposed to evolution. F. L. Patton of Princeton University has said:[17] "The anti-evolutionists have been fighting blindly because they have not themselves the scholarship to know just what they are attacking." Efforts have been successful, in a number of states, in passing laws forbidding the teaching of evolution in state-supported educational institutions. Of such laws W. B. Scott has said:[18] "Anti-evolution laws are of no great importance. They may denounce evolution, but no legislation can alter the facts upon which evolution is built."

On the other hand, many of the foremost scientists believe that evolution is in no sense atheistic, materialistic, anti-Biblical and anti-Christian. They look upon it as the method by which the Creator has brought into existence the many and varied forms of life. In a word, evolution is modal but not causal. Creation has been by evolu-

[17] F. L. Patton: *Continent*, 1925, p. 1263.
[18] W. B. Scott: *N. Y. Times*, 1927, Feb. 13.

tion. The opinions of nine outstanding scientists may be here given.

Charles Darwin says:[19] "In my most extreme fluctuations I have never been an atheist in the sense of denying the existence of God. But I may say that the impossibility of believing that this grand and wondrous universe with our conscious selves arose through chance seems to me the chief reason for the existence of God." Oliver Lodge writes:[20] "Evolution is not a haphazard chance process, with survival value in what happens to suit the environment. More and more are leaders in science coming to recognize design, purpose and plan. Mind cannot be excluded from the universe. It is mind which dominates matter; and the whole course of evolution is full of signs of guidance and intention." E. G. Conklin affirms:[21] "It is incredible that the system and order of nature, the evolution of matter and worlds and life, of man and consciousness and spiritual ideals are all the work of chance." C. Lloyd Morgan remarks:[22] "For some of us creation is, from first to last, subject to the directive presence of God."

R. A. Millikan says:[23] "It is a sublime concep-

[19] C. Darwin: *Evening Star*, Washington, D. C., 1923, Jan. 1.

[20] O. Lodge: *British Weekly*, 1926, Nov. 11, p. 153.

[21] E. G. Conklin: *Scribner's Magazine*, vol. 78, p. 457.

[22] C. L. Morgan: *Creation by Evolution*, edited by F. Mason, 1928, p. 345.

[23] R. A. Millikan: *Creation by Evolution*, 1928, p. 371.

tion of God which is furnished by science, and one wholly consonant with the highest ideals of religion, when it represents Him as revealing Himself through countless ages in the development of the earth, as an abode for man and in the age-long in-breathing of life into its constituent matter, culminating in man with his spiritual nature and all his God-like powers." H. H. Newman writes:[24] "Evolution no more takes God out of the universe than does gravitation. Both these great principles are mere manifestations of the grand strategy of Nature. They indicate the methods used by the ruling power back of the universe. The theory of evolution, as has often been said, does not deny creation; it merely explains the method of creation." L. G. Westgate remarks:[25] "The critical and pressing problem today is: Is the world spiritual? Does it conserve personal and spiritual values, or is it indifferent to all that man holds dearest? The doctrine of evolution, proposed first in the field of biology to explain the origin of species and since extended to cover the origin of the earth and of the solar system, of the stars, and of man, both body and personality, offers a definite contribution to the solution of this problem in a way that can help religious belief."

[24] H. H. Newman: *Creation by Evolution*, 1928, p. 370.
[25] L. G. Westgate: *Current History*, vol. 28, p. 909.

D. S. Jordan affirms:[26] "Is not creation by evolution a far more exalted conception than any creation by fiat imagined of old? And does it not reveal a Godhead infinitely worthy of obedience and adoration?" J. A. Thomson says:[27] "The evolutionist world is congruent with religious interpretation. It is a world in which the religious man can breathe freely." To these testimonials from leading scientists we may add the words of a distinguished educator and theologian, James McCosh, 1811-1894, president of Princeton University, 1868-1888. He writes:[28] "I saw that the most dangerous thing which could be done to Christianity at Princeton, was to reiterate in the university pulpit, week by week, solemn declarations that if evolution by natural selection, or indeed evolution at all, be true, the Scriptures are false. This, I believed, would make students unbelievers, and so in my public preaching I supported evolution."

CHAPTER VI

The Birthplace of Prehistoric Man

EVERYONE, naturally, desires to know the birthplace of prehistoric man. Four main localities

[26] D. S. Jordan: *Creation by Evolution*, 1928, p. 11.
[27] J. A. Thomson: *Creation by Evolution*, 1928, p. 22.
[28] J. McCosh: *Warfare of Science with Theology* by A. D. White, 1920, vol. 1, p. 80.

have been given as the probable cradles of the race. These are Mesopotamia, Africa, Europe and Central Asia. The claims of each will now be briefly considered.

I. MESOPOTAMIA

The earliest known writer on the birthplace of prehistoric man was the author of Genesis 2:8-14. Here, an enclosed park, or orchard, with many kinds of beautiful fruit trees is described. Such parks were common in Babylonia and Assyria where the owners, their families and friends would find great enjoyment since the climate, in these lands, is at times very hot. The Biblical writer, living in Palestine about 850 B.C., locates the park in a territory called Eden, situated in the east. The Hebrew word "Eden" means pleasure, delight, loveliness and charm. Some, however, derive "Eden" from the Assyrian word, "edinu," meaning plain, steppe and prairie. A large river flows from this territory into the park. As it emerges, it branches into four rivers. One of these is called Pishon, encircling the land of Havilah. Another is named Gihon, compassing the land of Cush. The third river is the Hiddekel or Tigris, flowing in front of Assyria. The fourth is the Euphrates.

In this brief piece of ancient geography the two

rivers, Hiddekel or Tigris and Euphrates, are well known. Assyria is very probably the great empire northeast of Babylonia with its capital at Nineveh. Havilah and Cush are doubtful localities, but the former has usually been regarded as Northern Arabia, and the latter as Ethiopia. The two rivers, Pishon and Gihon, are unknown. No large river is known which is the source of the Tigris, Euphrates and the other two rivers, Pishon and Gihon. Indeed, the Tigris and Euphrates do not spring from a common source. Their nearest sources, in the Taurus Mountains, are at least fifty miles apart. The territory, Eden, is also unknown. This indefinite information about the location of the birthplace of man has set scholars to speculating for well-nigh nineteen centuries. Much time, ingenuity and learning have been spent in the search for the exact location of the park in Eden. By actual count over eighty localities have been given as the site of the first home of mankind. These range all the way from the North Pole to Australia. Only a few of them need be mentioned here, since a good many are merely wild guesses resting on no secure scholarly foundations.

Josephus, A.D. 37-100, and many Church fathers considered the ocean encircling the earth the source of the four rivers. The Pishon was sup-

posed to be the Ganges and the Gihon the Nile. Havilah was India. Eden would then be somewhere in northeastern India. Calumet, A.D. 1672-1757, Rosenmuller, 1768-1835, Keil, 1807-1888, and some other scholars believed the source river was a region of springs. The Pishon and Gihon were mountain streams. The former may have been the Phasis or Araxes, and the latter the Oxus. Eden was located in Armenia. Calvin, 1509-1564, Huet, 1630-1721, and Bochart, 1599-1667, locate Eden in lower Babylonia. The Pishon and Gihon were regarded as channels by which the united rivers, Euphrates and Tigris, entered the Persian Gulf. Luther, 1483-1546, believed that the flood so altered the course of the rivers as to make it impossible to locate the park in Eden. Several scholars have resorted to allegory. Philo, 20 B.C.-A.D. 40, considered Eden to be the soul delighting in virtue, while the four rivers were four specific virtues: prudence, temperance, courage and justice. Origen, A.D. 182-251, believed that Eden was heaven and the rivers wisdom.

In modern times several eminent scholars have attacked the problem. Friedrich Delitzsch, 1850-1922, believed[29] that Eden was the Babylonian plain, and that the park was near Babylon. Pishon and Gihon were canals or ancient riverbeds on the

[29] F. Delitzsch: *Wo Lag das Paradies*, 1881, p. 45.

west and east sides of the Euphrates. The Pishon would be the Pallacopas, and the Gihon the Shatt en-Nil. Havilah was part of the desert west of the Euphrates. Cush was a name for Babylonia derived from the Kashshites who ruled there as the third dynasty, 1757-1181 B.C. Paul Haupt, 1858-1926, believed[30] that we must not start with the conceptions of modern geography, but with the quite different ideas of geography which the Biblical writer had in mind. Haupt thinks that the narrative in Genesis should be interpreted somewhat as follows: In northern Mesopotamia there was a large body of water suggested by a dim knowledge of the Black Sea. Here was the park in Eden and the sources of the four rivers. The Euphrates and Tigris flowed southward and ended in marshes. The Pishon, suggested by the Kerkha, starting more to the east, flowed into the Persian Gulf, supposed to be a river. It then turned westward encircling Havilah, Arabia, and finally ended in the Red Sea. The Gihon, suggested by the Karun, starting still further east, flowed at first southward and then westward. It encircled Cush, Ethiopia and finally ended in the Nile.

These differing views show how difficult it is, from the Biblical data to get an accurate idea of the location of Eden. The Biblical writer probably

[30] P. Haupt: *Literary Digest*, vol. 10, pp. 528-529.

had in mind some locality in or near Babylonia, in a region watered by a great river, the supposed source of four rivers—Euphrates, Tigris, Pishon and Gihon. It was natural for him to locate the birthplace of man here. Tradition placed the dispersion of mankind in Babylonia where the tower of Babel was erected (Gen. 11:8-9). Here was the seat of a very ancient civilization. Abraham, the ancestor of the Hebrews, migrated from Ur in Babylonia (Gen. 11:31). Present-day Old Testament scholars would probably agree in saying that the Biblical writer had only vague and indefinite ideas of geography east of Palestine. He was a spiritual specialist but not a geographical expert. His geography cannot be harmonized with our modern exact knowledge of lands and rivers in the Near East. This is not at all surprising, for even Alexander the Great, 356-323 B.C., supposed that he found the sources of the Nile in the Indus because he saw crocodiles and beans there. Pausanias, in the second century A.D., relates the tradition that "the same Nile is the river Euphrates which was lost in a lake and re-emerged as the Nile in the remote part of Ethiopia."

L. E. P. Erith correctly sums up the whole matter thus:[31] "Speculation as to the site of Eden

[31] L. E. P. Erith: *New Commentary on Holy Scripture*, edited by C. Gore, 1928, p. 43.

is futile, as may be seen by the discussion in the standard commentaries of the many localities suggested. All that can be said is that the narrative contains reminiscences of the country between the Euphrates and Tigris, and any fertile spot in Mesopotamia may have furnished the basis of the story of the garden." In recent years important archæological work has been done in Babylonia at such ancient sites as Nippur, Babylon, Ur and Kish. No human remains or artifacts much older than 4000 B.C. have thus far been found. Probably no scholar any longer believes that the birthplace of man was in Mesopotamia.

II. AFRICA

Some regard Africa as the original home of mankind. As early as 1871 Charles Darwin, in the *Descent of Man,* wrote:[32] "It is somewhat more probable that our early progenitors lived in the African continent than elsewhere." More recently, G. Elliot Smith in his *Essays on the Evolution of Man,* 1924, favors this continent. He says:[33] "I call attention to these considerations to suggest that the evidence now at our disposal affords some slight justification for the speculation that Africa may have been the area of characterization, or, to use a more homely phrase, the cradle

[32] C. Darwin: *Descent of Man,* 1874, p. 177.
[33] G. E. Smith: *Essays on the Evolution of Man,* 1924, p. 81.

both of the anthropoid apes and of the human family. In any case it is probable that Africa played an important part in the early history of man and his ancestors."

Two discoveries made a few years ago have also revived this view. In 1921 in Rhodesia, the Rhodes man was found. He is more primitive than the Neanderthal man. In 1924 at Taungs, Bechuanaland, fifty feet below the surface an ape was discovered. R. Dart, of Johannesburg University, places it in an intermediate position between man and no-man. The two species of anthropoid apes nearest to man, the gorilla and chimpanzee, are found in Africa. The earliest known remains of anthropoid apes have been unearthed in the Fayum in western Egypt.

A. W. Pond and G. L. Collie, recent explorers in the Sahara Desert, favor Africa as the birthplace of man. So also does Dr. Cadle, who has been exploring the Kalahari Desert in South Africa, where he found pygmies in stone age culture who chattered like baboons and who could count only up to three. The Oriental Institute of Chicago University, under the direction of J. H. Breasted, is engaged in studying the Egyptian stone age culture on the Nile. Ancient flints show that the valley was occupied by man about 15000 B.C. Here probably civilization began. By 4000

B.C. the art of communicating by picture writing became well developed. Arts flourished and an organized, centralized government appeared in the Nile valley.

III. EUROPE

Europe has been regarded by some as the cradle of mankind. This opinion has been held for two main reasons. Very many skeletal remains of prehistoric man have been found in Europe. The Heidelberg, Neanderthal and Cro-Magnon remains were all discovered on this continent. Then, too, very many artifacts have been unearthed in Europe. These consist of weapons, tools, implements, utensils, pottery, paintings and sculpture. Among the scholars who regard Europe as the birthplace of man is A. Hrdlicka. He says:[34] "The cradle of the human race was western and southwestern Europe."

IV. ASIA

In recent years numbers of scholars have come to believe that central Asia has the best claim to be the earliest home of mankind. There are ten main reasons for this view. (1) The oldest human remains, the Java man, were found on the island of Java, which was once a part of the mainland of

[34] A. Hrdlicka: *Proceedings of Am. Phil. Soc.*, 1926, vol. 65, pp. 150-156.

Asia. (2) In 1921 in a cave southwest of Peking a premolar and molar tooth were found. These go back to the early Quaternary age. (3) Artifacts, the handiwork of prehistoric man of not later than 25000 B.C. have been found in Mongolia by Roy Chapman Andrews. (4) Sand-drifted ruins of a very great age have been found in Mongolia. These, while not yet explored, are supposed to represent a very ancient civilization. (5) Two species of anthropoids have been discovered in Asia. These are the orangs and gibbons. (6) Remains of Primates, the highest order of mammals either ancestral or closely related to the living anthropoids, have been unearthed on this continent. (7) Most of our domestic animals and cereals have come from Asia. (8) Mongolia is the oldest dry land on the globe. It has been dry twenty millions of years, while other parts of the earth have been submerged. (9) The great size of Asia, with varying life conditions, would be favorable for the development of primitive man. (10) Asia is located centrally to other lands. Migrations going north, south, east and west would easily start from here.

Among the scholars locating the birthplace of man in Asia the following may be mentioned. S. W. Williston says:[35] "Man was born and attained

[35] S. W. Williston: *Popular Science Monthly*, 1910, vol. 77, p. 596.

elemental civilization in Asia because there was the place of all others upon the earth where evolution, in general, of organic life reached its highest development in late Cenozoic times." H. F. Osborn writes:[36] "The unknown ancestors of man probably originated among the forests and flood plains of southern Asia and early began to migrate westward into northern Africa and western Europe." J. M. Tyler remarks:[37] "But the climatic conditions of that time lead us to seek his original cradle somewhat further northward than India or even Baluchistan, and nearer, to, if not in the great steppe zone of central Asia." E. G. Conklin affirms:[38] "From his earliest home, probably in the tablelands of central Asia, successive waves of human migration have flowed forth in all directions." R. S. Lull observes:[39] "That Asia is the birthplace of mankind is seemingly established." Clark Wissler remarks:[40] "Man originated in Asia." W. H. Worrell says:[41] "On the whole it appears most likely that man first appeared somewhere in Asia." J. A. Thomson writes:[42] "The probability is that the cradle of the human race was in Asia." D. G. Brinton says:[43] "We have

[36] H. F. Osborn: *Men of Old Stone Age*, 1918, p. 49.
[37] J. M. Tyler: *New Stone Age in Northern Europe*, 1921, p. 17.
[38] E. G. Conklin: *Direction of Human Evolution*, 1921, p. 36.
[39] R. S. Lull: *Evolution of Man*, 1922, p. 5.
[40] C. Wissler: *N. Y. Times*, 1927, May 1.
[41] W. H. Worrell: *Races in Ancient Near East*, 1927, p. 19.
[42] J. A. Thomson: *Outline of Science*, 1922, vol. 1, p. 165.
[43] D. G. Brinton: *Races and Peoples*, 1901, p. 83.

been taught by long tradition and venerable documents to look for the first home of primeval man somewhere in Asia."

CHAPTER VII

The Color of Man

It is not possible to tell what the color of the earliest human beings was. The oldest remains are fossils which, of course, contain no flesh. There was probably at first only one human pair, male and female. All races of men have sprung from them. This is what Paul means when he says (Acts 17:26): "And he made of one every nation of men to dwell on all the face of the earth." Race is used in two senses. We speak of the human race meaning beings having certain mental and physical characteristics associated with humans in distinction from sub-humans. We also use the term negro or yellow race. This is a subdivision of the human race based on certain physical characteristics, as, for example, color.

The oldest known color of man seems to have been brown. There are five main colors in the world today: The white or Caucasian race with 550 millions; the yellow or Mongolian race with 500 millions; the brown or Malay race with 450 millions; the black or Negro race with 150 mil-

lions; the red or Amerind race with 40 millions. These different colors are mainly due to climate, lay of the land, occupations, food and clothing. In the course of a generation or two we can see color changes wrought by such factors.

There are a good many mixed colors. When two or more races live in close proximity there is always a mingling. In the census of 1920 there were listed 1,660,554 mulattoes in the United States. In South America there are about 26 million whites, negroes and reds. About 20 million are of mixed blood. In Australia and New Zealand there are as many half-castes as full-blooded aborigines. The white race at present constitutes about one-third of the population of the world. It owns about four-tenths of the land, and has political control of about nine-tenths.

Concerning the future of the white race the opinions of two eminent scientists may be here quoted. J. A. Thomson says:[44] "At present the population of the globe stands at about 1700 millions. But it does not stand; it is being added to at the rate of between 14 and 16 millions a year. The white race, so called, is increasing much more rapidly than the yellow or the black. China's 300 million population remains practically stationary as far as we know." E. G. Conklin writes:[45] "In

[44] J. A. Thomson: *What Is Man*, 1924, p. 214.
[45] E. G. Conklin: *Direction of Human Evolution*, 1921, p. 39.

spite of alarms about race suicide, the white race is increasing more rapidly than any other race. This is due not merely to the larger area which it controls but also to its greater agricultural, industrial and scientific development. While the birth rate is falling everywhere, the death rate is falling more rapidly among whites than among other races."

Part IV

THE CONDITION OF PREHISTORIC MAN

CHAPTER I

Homes

EARLIEST man probably lived mostly in trees. This would be largely for protection. Branches and leaves could be formed into a floor and roof. Some humans still live in trees. This is true of the pygmies in Borneo whose homes are nests in trees. The wonderful grip of babies and the curvatures of their soles are considered by some to be vestiges of a tree life. A muscle in the shoulder, now atrophied, may point back to an arboreal life. The anthropoid apes, gorilla, chimpanzee, orang and gibbon live in trees.

Another early home of man was a rock shelter. It is formed by the rock projecting over a good way. A protection was thus made from the storms and the heat. Caves were also a very common habitation. These are chiefly of limestone which has been gradually washed away by underground streams. Man would live close to the entrance so as to be near the light and also to keep away wild animals. Very many traces of man have been found in the caves. Both rock shelters and caves are very common in France and Spain.

Other dwellings were rude huts made of stones and wood. They were usually circular and had no windows. The fireplace was near the door. The foundations of these dwellings have been found chiefly in Denmark where the kitchen middens have yielded much material bearing on prehistoric man. In certain regions, lake dwellings were common. A short distance from the shore where the water would be about ten feet deep, long poles were driven into the bottom, and upon these, huts were erected. All work was done with stone tools. Some of the poles yet remain. Many articles, which had fallen into the water, are now being dug up. Lake dwellings were most common in Switzerland. Vestiges of fifty have been found in Lake Neuchatel, of forty in Lake Geneva, of forty in Lake Constance and of ten in Lake Zurich.

CHAPTER II

Clothing

WHAT did prehistoric man wear? The answer would depend on the climate. How different is the clothing of a Greenlander from that of one living in the heart of Africa. If we assume that the cradle of the race was in a warm climate then earliest man wore no clothing at all. This is the

tradition recorded in Genesis 2:25, where we read: "And they were both naked, the man and his wife, and were not ashamed." In some parts of the world the inhabitants today wear no clothing. Such is true of an Indian tribe recently discovered in the heart of Brazil. In many warm countries a small loin cloth is worn. The anthropoids wear no clothing but have a hairy covering. Nature probably provided a similar covering for earliest man. The hair on our heads may be the remnant of that which covered the whole body. Now and then a human is found with a heavy growth of hair all over the body. This is a reversion to an earlier common condition.

Several causes would lead to the use of clothing. Man for various reasons migrated from warmer to colder climates. The ice age produced a great change in temperature. Man must keep the body warm or die from the cold. Clothing was thus needful. Skins were apparently a very common material for the garments of prehistoric man. This is proved by the abundance of stone scrapers used in dressing the skins. Another material was a kind of cloth made of grass, leaves and reeds, woven or plaited. Many bone needles have been found. Thread would be made of fibre. Such cloth has been discovered among the débris from lake dwellings. It is interesting to note that even today

in Albania a similar cloth is worn by the peasants. In speaking of prehistoric man J. A. Mac Culloch says:[46] "They decorated their persons with coloring matter, shells, bits of bone, even with beads." All this would be as true of the men as of the women. Such decoration was to attract the opposite sex. It is noticeable today that the further down people are in the scale of civilization the more abundant is their decoration.

CHAPTER III

Occupations

MAN'S earliest occupation was to procure food. This is largely his work today. The same is true of all the creatures below man. Hunting and fishing were probably the most ancient occupations. From these came the chief supply of food. Hunting was done by means of stones, clubs, sticks, bolas, flint knives, javelins, darts, harpoons and covered pits. The dog, domesticated in neolithic times, would also be used. Some sixty-six species of animals are known to have been hunted in palæolithic times. Chief among these were the mammoth, hippopotamus, cave lion, cave bear, hyena and reindeer. In neolithic times only about one-half of this number was hunted because man

[46] J. A. Mac Culloch: *Expository Times*, vol. 17, p. 487.

depended more on the products of garden and field. Fishing was done with spear, bone hooks, arrows and nets of linen. Bones of the following fish have been found: Spanish mackerel, eel, salmon, trout, carp, flounder, pike, plaice, herring, shellfish and oysters. The American Indians, when discovered, would be a good example of people in the hunting and fishing stage.

The pastoral stage followed that of hunting and fishing. Man had herds and flocks. He moved from place to place to find pasture for them. Certain animals, adapted to his needs, would, in course of time, be domesticated. Such were the dog, horse, ox, cow, sheep, goat and pig. The first domesticated animal was probably the dog. He would come to the garbage heaps for scraps of food thrown out from the kitchen. He gradually became tamed. As far as we know, there were no domesticated animals in the old stone age. In the Bible, Abraham, Isaac and Jacob led pastoral lives. In Arabia and other parts of the Near East there are many peoples in the pastoral stage. They are called Bedouins.

The pastoral stage was succeeded by the agricultural. This was epoch-making for the advancement of civilization. Man now settles down in one locality and owns property. He tills the fields and domesticates grain and plants. About two hundred

species of grain and plants have been found in the sediment beneath lake dwellings. The most important are: wheat, oats, barley, flax, strawberry, apple and pear. The first agricultural implements would be the finger and hand. Later a digging stick took the place of the finger and hand. In time a spade and hoe were used. Finally plows were invented. These consisted of a bent beam with a plowshare of wood inserted. Such plows are still used in some oriental lands today. Women at first did the pulling. The ox, cow and horse were later used.

It has been commonly supposed that war was a constant occupation of primitive man. This is very probably an error. J. A. Thomson says:[47] "Sir Henry Maine speaks of the universal belligerency of primitive man, but this is a very dubious conclusion. The weapons of primitive man are hunting weapons. Apart from punishments and blood revenge, war is not general among uncivilized peoples."

CHAPTER IV

Fire

THE discovery of fire was an epoch-making event in the history of civilization. This can be readily seen if we, for a moment, think of what

[47] J. A. Thomson: *What Is Man*, 1924, p. 214.

would happen if we, today, had no fire. There would be no travel by railroad, steamboat, trolley car or automobile. Our homes could not be heated by steam, hot water, furnace, stove or grate. There would be no pottery. Our factories would be without steam and electricity. There would be no cooking. As fire reduces the metal from ore, we should be without metals and living in the stone age.

A. R. Wallace has vividly expressed[48] the extraordinary significance of fire: "Fire in various forms and in ever-widening spheres of action, has not only ministered to the necessities and the enjoyments of man, but has been the greatest, the essential factor, in that continuous increase of his power over nature, which has undoubtedly been a chief means in the development of his intellect and a necessary condition of what we term civilization. Without fire there would have been neither a bronze nor an iron age, and without these there could have been no effective tools or weapons, with all the long succession of mechanical discoveries and refinements that depend upon them. Without fire there could be no rudiment even of chemistry, and all that has arisen out of it. Without fire much of the earth's surface would be uninhabitable by man, and much of what is now

[48] A. R. Wallace: *Wonderful Century*, 1898, p. 12.

wholesome food would be useless to him. Without fire he must always have remained ignorant of the larger part of the world of matter and of its mysterious forces. He might have lived in the warmer parts of the earth in a savage or even in a partly civilized condition, but he could never have risen to the full dignity of intellectual man, the interpreter and master of the forces of nature."

Prehistoric man could discover fire in several ways. Volcanoes, pouring forth lava, might set woods and grass on fire. Lightning could strike some object and cause a fire. Strong winds cause the branches of trees to rub against each other. A fire could result. In chipping flints, sparks would be emitted which could kindle a fire. After fire was discovered it would take man some time to make it. Even today the Tasmanians do not know how to make fire. A common fire would be kept burning. This would be used by the family, clan and tribe. Persons would come for fire and carry it away by a firebrand to their abodes. This is probably the origin of sacred fire and of the vestal virgins who tended it.

Man learned later how to make fire in an artificial manner. A fire borer by rotary motion produced fire. A fire plow, moved to and fro in a groove, was also used. Flint and iron pyrites

would make a fire. At the St. Louis Exposition in 1904, a Negrito from the Philippines made a fire in fifty-eight seconds by rubbing two bamboo sticks. Man early used fire. In the early palæolithic period burnt flints have been found. Well defined hearths from the middle palæolithic period have been discovered. As far as we know, there are no fireless peoples in the world today. W. Hough says:[49] "From time to time there have appeared in the accounts of travellers stories about fireless peoples. When other observers seek to verify these stories, they are proven to be without foundation."

CHAPTER V

Food and Drink

Prehistoric man would eat at first just what he found at hand. His diet would consist of fruits and vegetables. In Eden, Adam and Eve were vegetarians (Gen. 2:16). Later animal food, obtained by hunting and fishing, was eaten. The writer in Genesis 9:3 says that animal food was introduced at the time of Noah. Seeds of the following trees and plants have been found in the sediment beneath lake dwellings: oak, beech, hazel, waternut, crab apple, wild pear, strawberry, raspberry, blackberry, sweet cherry, dam-

[49] W. Hough: *Fire as an Agent in Human Culture*, 1926, p. 2.

son plum, plum, bird cherry, mahaleb cherry, whortleberry and elderberry. A great variety of fish was eaten, as the bones show. The more common game was the bison, reindeer and horse.

All food was at first eaten raw. Some humans today eat uncooked food. R. E. Byrd found in Greenland natives eating raw fish. An Indian tribe in the heart of Brazil was recently discovered. All their food is raw. Cooking was discovered by accident. A group would be setting round a fire. Someone would drop a piece of flesh in the flames. Before it could be pulled out of the fire it was cooked. Certain animals, caught in forest fires, would be burned to death. They would afterwards be found and eaten. Man came to like cooked food because it was tender and had a fine odor and good taste. Cooked food could also be kept longer from spoiling.

Man's first drink was water. In Eden there was an abundant supply. For some time this continued to be man's only means of satisfying thirst. Fermented beverages were later discovered. H. W. Wiley says:[50] "Wine could not escape early discovery, because fruits of all kinds, when crushed and left to natural causes undergo the alcoholic fermentation. Primitive man must, therefore, have been acquainted with the properties of the

[50] H. W. Wiley: *Evening Star*, Washington, D. C., 1929, Jan. 19, p. 6.

fermented juice of fruits, especially of grapes." In Genesis 9:20 we read: "And Noah began to be a husbandman, and planted a vineyard: and he drank wine and was drunken." It is interesting to note that in 1927 M. W. Stirling found the natives in the heart of New Guinea using only water as their drink and having apparently no knowledge of any fermented liquors. These people are still living in the new stone age culture.

Prehistoric man had no knives, forks and spoons. The fingers and hand were used when eating. This is the custom today among many Bedouins in the Near East. Fist hammers were used to break bones for the marrow. Cutting was done with stone knives. Palms of the hands, hollow stones, gourds, cocoanuts, hulls of vegetables, large leaves and shells would be used for carrying liquids. Neolithic millstones have been discovered. These consist of a flat stone and a smaller stone on top which was moved around to crush the grain. Loaves of bread without yeast have been unearthed at the site of lake dwellings.

CHAPTER VI

Artifacts

ARTIFACT is the name given to all the things made by prehistoric man such as tools, weapons, implements, utensils, earthenware, stoneware,

drawings, paintings and sculpture. J. H. Breasted rightly speaks[51] of "man the first, and thus far the only tool-making creature on the globe." Artifacts are divided into two main groups called the palæolithic and neolithic, or old stone age and new stone age. Some archæologists make three divisions by inserting a middle stone age between the old and new stone ages.

The palæolithic age extends to about 10000 B.C. Artifacts in this period are made by hammering or pressure. They are at first rudely made but gradually show progress in manufacture. It is customary to divide the palæolithic artifacts into seven classes or cultures, depending on their excellence.

I Pre-Chellean
II Chellean: Upper and lower
III Acheulian: Upper and lower
IV Mousterian: Upper and lower
} Evolution of the cleaver and scraper

V Aurignacian
- Upper: art
- Middle: graver
- Lower: scratcher

VI Solutrean
- Upper: point with lateral notch at base
- Middle: laurel leaf point
- Lower: Font-Robert point

VII Magdalenian
- 6, 5, 4: Evolution of harpoon of reindeer horn } Polychrome frescoes
- 3, 2, 1: Evolution of javelin

[51] J. H. Breasted: *Scribner's Magazine*, vol. 84, p. 516.

The names of these seven classes of artifacts are derived from the localities in France where they were first found: Chelles, Saint Acheul, Le Moustier, Aurignac, Solutre and La Madeleine.

The neolithic age extends from about 10000 B.C. to 5000 B.C. The artifacts are made by grinding and rubbing. They show progress in workmanship. It is usual to divide the neolithic artifacts into six classes or cultures, depending on their excellence.

I Tardenoisian: Harpoons of iron
II Azelian: Painted pebbles
III Maglemosean: Scandinavian equivalent of Azelian
IV Campignian Pottery
V Robenhausian: Polished flint instruments
VI Carnacian { Stone cist / Many-chambered dolmen / Small dolmen

The names are derived from the places where the different classes were found: I, II, IV, VI in France; III in Scandinavia; V in Switzerland.

Artifacts are of different kinds. Before man made any artifacts he probably used certain objects formed by nature. These are called eoliths. Fist stone hammers and axes would be examples of these. It is sometimes very difficult to distinguish an eolith from an artifact. The following are the main classes of artifacts:

I. Artifacts of stone and flint consisting of

hammers, axes, chisels, scrapers, arrow-heads and spear-heads.

II. Artifacts of bone, antler and ivory consisting of harpoons, lance points, needles, awls, polishers and spear throwers.

III. Artifacts of woven materials consisting of osier baskets, and cloth from fibre and flax.

IV. Artifacts of earthenware. Earthenware first appears in the transition period between the palæolithic and neolithic ages. There was no potter's wheel until the bronze age. All pottery was made by hand. Earthenware was probably first discovered by plastering within and without wicker baskets with clay. These would be put over a fire for hot water. The clay would thus be fired or hardened. Vessels of clay may have also been hardened by the sun.

Earthenware vessels are of various sizes, shapes and ornament. A very general division is into three classes based on ornament and shape.

1. Banded pottery with zones or bands around the vessels.
2. Corded pottery with cords around the neck.
3. Caleyform pottery in the shape of an inverted bell or goblet with a flat base.

V. Artifacts of stoneware. Stoneware is found in the late neolithic period. It consists mainly of vases, bowls, platters, jars, cups and goblets. They are made of various kinds of stone. The workmanship is most excellent. This is the more remarkable when it is remembered that no metal tools were used.

VI. Megalithic Artifacts. A megalith means a big stone. These are found chiefly in France, where some 4500 have been discovered. There are a good many in Great Britain, Ireland, Denmark and Sweden.

Megaliths are usually divided into four classes:

1. Menhirs. Menhir is derived from men = stone, and hir = great. These are single stones in an upright position. They vary greatly in size. The giant menhir at Lochmariaquer, Morbihan, France, is about 70 feet high and weighs 330 short tons.
2. Cromlechs. A cromlech is an oval or rectangular circle of standing stones. Stonehenge in England is a good example.
3. Dolmens. Dolmen is derived from dol = table, and men = stone. A dolmen

consists of two upright stones with a horizontal stone resting upon them.

4. Alignments. Alignments are parallel rows of standing stones. The best examples are found at Carnac, Brittany, France. Here they extend east and west some three miles. There are three groups with 11, 10 and 13 rows. The first group has 1169 standing stones, the second has 982, and the third has 579. It has been estimated that these stones originally numbered from 12 to 15,000.

The purpose of these megaliths is somewhat uncertain. A number of fanciful explanations have been given but these need not be considered. The opinion held by most scholars today is that megaliths mark the graves of heroes where services were held, sacrifices offered and games celebrated.

The method of transportation and erection was probably the same as in Egypt. The stones were moved on rollers with hundreds of persons pulling. The stones would be set up by means of inclined planes of earth. A block of stone, at La Perotte, Charente, France, weighs 40 tons. It was brought 18 miles from its quarry.

VII. Artistic Artifacts. The art work of prehistoric man is seen in painting, sculpture and

drawing. The paintings are on the walls of caves. They are in four colors: red, black, white and yellow. The subjects are usually the following creatures: birds, bisons, cave bears, chamois, cave tigers, elks, elephants, fishes, hinds, horses, ibex, mammoths, oxen, reindeers, rhinoceros, stags, wild boars, and wolves. The sculpture work consists of bisons in clay, female figures in ivory, and horses carved in stone. There are drawings of animals and fishes on horn, bone and ivory.

The purpose of this art work was probably threefold. Religion would be the chief motive. Prehistoric man believed that by sympathetic magic and ceremonial ritual the creatures would be multiplied. Another motive would be the decoration of caves so as to make a permanent record of successful hunts. Another reason would be that artistic natures must express themselves in some form of art work.

CHAPTER VII

Transportation

PREHISTORIC man was self-contained. This was largely true of people on the plantations before the Civil War. Primitive man supplied all his wants such as food, clothing and shelter. There was then little need for transportation except in a

very limited way. When it was needed, the methods would be various. Articles would be carried in the hand, in the arms and on the shoulders. A pole over the shoulders of two persons would be used. Heavy objects like reindeers and mammoths were hauled on the ground. These could be placed on the branches of trees and dragged by men, women, children, dogs, oxen and horses. A sled in time supplanted branches. Sleds would be made of flat boards joined together and without runners. Rollers of wood were later placed under the sled. Megaliths were moved in this way.

The discovery of the wheel was a most important step in the advancement of civilization. The objects to be moved were put on an axle. This method is frequently used today in moving logs. G. G. MacCurdy says:[52] "The wheel complex is so largely and inextricably interwoven into the fabric of modern civilization that one is unthinkable without the other. Take away fire and the wheel and the world would suddenly revert to a sub-neolithic level. By the aid of the wheel the evolution of civilization has gone on with a rapidity which makes all anterior progress slow indeed." The most primitive wheels were sections of a tree trunk several inches thick. Spokes came in later.

[52] G. G. MacCurdy: *Human Origins*, 1924, vol. 2, p. 150.

Transportation by water was at first by means of rafts of logs. Then the logs would be hollowed out by fire and stone tools. These would serve as boats.

CHAPTER VIII

Disease, Medicine and Surgery

A. DISEASE

THERE were diseases in prehistoric times. Disease seems to be as old as life itself. This is abundantly proved by the fossil remains of animals and human beings. In the palæozoic age, 525 to 225 millions of years ago the following diseases are found in the fossil bones of animals: caries, decay of the teeth; pyorrhea, pus discharge; necrosis or death of the bone; fractures, broken bones; callus, bony material formed while fracture heals; and parisitism, foreign elements clinging to bones.

In the mesozoic period 225 to 60 millions of years ago, lesions are very common. These are changes in the functioning or in the texture of organisms. Lesions are found in the bones of such animals as dinosaurs, turtles, crocodiles and other reptiles. A vascular bone tumor was discovered in the tail bones of a large dinosaur. In the tertiary

era, 60 to 1 million of years ago the remains show the existence of numerous diseases.

The quaternary age extends from one million years ago to the present time. In this era man appeared not less than 500,000 years ago, but probably very much earlier. There are abundant evidences of disease in the remains of prehistoric man. There are caries and bone cysts, sacs containing morbid matter. A few instances of tuberculosis have been discovered. Rickets, ulcerations, atrophy of skull and bones, abnormal curvature of spinal column, bony tumors, bony growths, and many kinds of inflammation of the joints are found. There are cases of pyorrhea and necrosis. A. Keith mentions[53] the skeleton of a man showing a left-sided palsy contracted in boyhood.

Fossil shells and fishes show traces of diseases just as the bones of animals do. Fossil tsetse and other flies are found. These were disease carriers in prehistoric times just as they are today. In the oldest rocks there are found remains of bacteria microscopical fungi and other organisms carrying disease.

The prevalence of disease in prehistoric times has been admirably summed up by A. Selwyn-Brown as follows:[54] "The pathological investiga-

[53] A. Keith: *Antiquity of Man*, 1925, vol. 1, p. 149.

[54] A. Selwyn-Brown: *Physician Throughout the Ages*, 1928, vol. 1, p. 4.

tion of fossil remains is a new study. The work already done, however, justifies us in asserting that the commoner diseases of animals, plants, fish and insects, originated shortly after the development of the genus or species, and are consequently almost as old as the genus or species subject to them. No matter how much living conditions varied in accordance with climatic changes, diseases, infections, epidemics and pests have followed the evolutions of organic life, and carried on a constant warfare with them." K. Sudhoff says:[55] "That diseases abounded even in the imaginary Golden Age of early man, ten thousands of years ago, yes, even in the Palæozoic Era, millions of years before, is demonstrated by the investigations of primordial and prehistoric times." We are reminded of Paul's words in Romans 8:22, "For we know that the whole creation groaneth and travaileth in pain together until now."

B. MEDICINE

Man must have very early used medicine. He would see the animals about him using various remedies. Dogs and cats ate herbs as purgatives. The mongoose, bitten by a snake, chews mimosa leaves. Toads, stung by spiders, eat the leaves of plantago major. Wild goats, hit by poisoned ar-

[55] K. Sudhoff: *Essays in History of Medicine*, 1926, p. 77.

rows, eat dittany. These observations of prehistoric man have been expressed by a mediæval physician and theologian, H. J. Agrippa, 1486-1535. He says:[56] "The sick magpie puts a bay leaf into her nest and is recovered. The lion, if he is feverish, is recovered by eating of an ape. By eating the herb, dittany, a wounded stag, or goat, expels the dart out of his body. Cranes medicate themselves with bulrushes; leopards with wolf's bone; boars with ivy; for between such plants and animals there is an occult friendship."

If all this is true of the creatures below man, how much more true must it have been of man. His medicines would be various herbs, roots, fruits and leaves. He probably also discovered certain minerals good for healing. We have no means of knowing from contemporary sources just what medicines primitive man used. We may, however, make inferences from the remedies found in the earliest known human records of Egypt, Babylonia and Assyria.

The Egyptian medical papyri mention magnesia, lime, iron, soda, nitre, vermilion, peppermint, fennel, thyme, cassia, gentian, aloes, caraway, castor oil, coriander, dill, mandrake, henbane, linseed, mustard, onion, frankincense, myrrh, juniper, yeast, turpentine, salts of copper and of lead.

[56] A. Selwyn-Brown: *Physician Throughout the Ages*, 1928, vol. 1, p. 9.

The Assyrian medical tablets speak of sesame, syrup of dates, honey, salt, almond oil, aniseed, galbanum, liquorice, alum and bitumen. Most of these remedies were probably used by prehistoric peoples and were inherited from them by the Egyptians, Babylonians and Assyrians. C. Singer says:[57] "Some thirty per cent of the crude vegetable drugs in the modern Pharmacopœia were known in remote antiquity." The early American Indians had a large number of medicines some of which are now used in scientific medicine.

Primitive man, most probably, also used witchcraft in healing. He was very superstitious and believed in spirits some of whom caused the ills of life. These would be driven out by those who were skilled in such matters. Amulets and skull bones with perforations were common. These would be carried on the person and would act as a charm against disease. K. Sudhoff says:[58] "It is probable that bony amulets were used as a prophylactic or curative agent in epilepsy and other convulsive disorders and in persistent headaches." Many people today carry amulets such as rabbit's feet, chestnuts, potatoes, luck pennies and the like. They believe most implicitly in the virtue of these objects.

Divinities would also be implored to expel the

[57] C. Singer: *Short History of Medicine*, 1928, p. 322.
[58] K. Sudhoff: *Essays in History of Medicine*, 1926, p. 165.

ailment. The Indian medicine man was both a physician and a priest. He used drugs but he also repeated magical words which were supposed to have a healing power. Even today in certain parts of the United States there are people who practice pow-wowing in order to expel diseases. Numbers believe in the efficacy of such a remedy.

C. SURGERY

Surgical operations were performed by prehistoric man. He had only stone instruments, since metal was not yet discovered. Flint saws, knives, scrapers, chisels and borers would constitute the outfit of these primitive surgeons. The operations embraced finger, arm and other amputations, correction of deformities and suppuration during the process of healing. There are indications of cauterization and scarification. Remarkable skill was shown in setting fractures. It was found that in the skeletons of 18 men having fractured limbs only 3 had healed badly. K. Jaeger found 53.8% of good unions of prehistoric fractures as against 46.2% of bad unions.

Trephining seems to have been a common operation in prehistoric times. In a mound in France with the bones of 120 persons, no less than 40 had trephined skulls. The Yale expedition to Peru

in 1914 and 1915 found in caverns northwest of Cuzco 250 Inca skeletal crania of which 18% had been trephined. One cranium had 5 holes in it. The trephining was mostly on the left side because the right hand would ward off danger from the right side.

Various ailments would be treated by trephining. Headaches would be the most common. An injured skull causing convulsions and delirium would be trephined. Then other diseases with somewhat similar symptoms, as epilepsy and lunacy, would be treated in like manner. Trephining probably also had a magical effect. A common belief was that diseases were caused by evil spirits in the head. A hole must be bored in the skull to let the spirit out. Trephining is a common practice today among the natives of Polynesia, Montenegro, Peru and Bolivia. There is no evidence of any anesthetic being used in prehistoric times.

CHAPTER IX

Physical Condition

PREHISTORIC man was well developed physically. He was not slender, delicate or weakly, but stout, strong and healthy. He was apparently no taller than the average man of today. There is no

evidence that prehistoric man lived longer than he does today. The stories of the great ages attained by early man are probably due to the tendency of oral tradition to glorify the past. "There were giants in the earth in those days."[59] There was much in the life of prehistoric man to favor physical development. He did not use his brain very much as in our modern life with its cares, worries and intense competition demanding vigorous use of our mental powers. It is noticeable that feeble-minded and insane persons have usually remarkably good health.

Prehistoric man had an abundance of pure air by day and night. He lived in trees, rock shelters and caves. He had plenty of exercise in hunting and fishing as well as in tilling his fields. His clothing was conducive to health. It was meagre in quantity and very loose so as to allow a natural development of the body. His fare was wholesome. It consisted of animal and fish food, fruit, nuts and roots. All at first was eaten raw. There were no highly seasoned dishes to upset the stomach and cause indigestion and many other ailments. His drink was pure water gushing forth from springs. There were no intoxicants to injure bodily health.

[59] Genesis 6: 4.

CHAPTER X

Mentality

PREHISTORIC man had probably, at first, a very low order of mentality. It was scarcely above his sub-human precursors. It was formerly customary to speak of instinct in animals and mind in man. Now we speak of mind in man, animals and even in plants. J. A. Thomson uses such terms[60] as "mind of a minnow," "mind of amphibians," "the reptilian mind," "mind in birds," "mind of mammals," and "mind of monkeys." He says:[61] "Indeed, many facts suggest the conclusion that wherever there is life there is some degree of mind—even in plants. Or, it might be more accurate to put the conclusion in another way, that the activity we call life has always in some degree an inner or mental aspect."

R. Blair writes:[62] "Man is often spoken of as 'the thinking animal,' as if he were the only creature to possess the power of flooding a present situation with memories of past experiences. But I think it can be demonstrated beyond question that he is not alone in his capacity for thought, that he differs from the lower animals rather in the quality of his thinking than in the essential

[60] J. A. Thomson: *Outline of Science*, 1922, vol. 1, pp. 207-242.
[61] J. A. Thomson: *Outline of Science*, 1922, vol. 1, p. 75.
[62] R. Blair: *Forum*, vol. 78, p. 253.

nature of his reasoning processes." E. L. Thorndike remarks:[68] "The mind of man is a part of nature, a development from animal mind, and is better understood in proportion as we gain understanding of animal life and learning."

Very remarkable experiments on plants have been conducted by J. C. Bose. He shows the essential kinship of plants and animals. He proves that plants feel, have hearts, and nervous systems, sleep, glory in sunlight and die at last with a passionate struggle of regret. He believes that all plants and animals are ultimately derived from single-cell organisms which have something of the nature of both plant and animal, so that it is difficult to say whether they are plant or animal or both. As is now well known, there is no gap between plants and animals. One may compare the group known as carnivorous plants, especially the variety called the Venus fly trap.

A number of books have appeared in recent years which deal with mind in its various stages. Among them may be mentioned: *The Minds and Manners of Wild Animals,* 1922, by W. T. Hornaday; *The Mentality of Apes,* 1925, by W. Kohler; *The Brain From Ape to Man,* 1928, by F. Tilney; *Instinct and Intelligence,* 1928, by R. W. G. Hingston; *Brains of Rats and Men,* 1926,

[68] E. L. Thorndike: *N. Y. Times,* 1927, Aug. 21.

by C. J. Herrick; *Almost Human,* 1925, by R. M. Yerkes; *Plant Autographs and Their Revelations,* 1926, by J. C. Bose, and *The Motor Mechanism of Plants,* 1929, by J. C. Bose.

Prehistoric man's mental development came largely from practical needs. He must use his mind in fishing. How can he spear, hook or net fish? In hunting he thinks of the best ways for using weapons and traps. When he reached the pastoral stage much thought must be given to taming and raising animals. He has to seek out localities where food is abundant. In the agricultural stage, he cultivates the ground by inventing hoes, rakes, spades, harrows, rollers and ploughs. Attention must be given to sowing seed, to cutting the crop and to threshing it. At the firesides ideas would be exchanged and thus a stimulus to thinking would arise as to the best means of doing this and that.

In principle this is just the way the mind is trained today. We go to school and college in order to exercise mind on such subjects as reading, spelling, writing, arithmetic, languages, history, science, philosophy and the other branches of knowledge which make up our educational curricula. Only by thus using the mind can it be developed. The great purpose of all education is to lead to deep, high, broad and straight thinking.

So while primitive man had no books and schools, he had a most important training from the experiences of daily life. These furnished abundant material for the exercise of his mind.

The question is sometimes asked as to how mind originated. E. B. Poulton says:[64] "Darwin considered it a mere waste of time to speculate about the origin of life; we might as well, he said, speculate about the origin of matter. Few scientists try to explain it. It is beyond their province." The most satisfactory answer is in the first words of the Bible: "In the beginning God."

CHAPTER XI

Language

THE most primitive man must have had some form of communication. This is proved by the sub-human creatures which have a speech expressing definite ideas, feelings, moods, wishes and the like. This language usually takes the form of interjections which differ according to the ideas to be communicated. The domestic animals furnish the most accessible illustrations of sub-human language.

The dog is a good example. His language is expressed by varied barks. If he suffers pain he has a painful bark. When one knocks on the door

[64] E. B. Poulton: *Fifty Years of Darwinism*, 1909, p. 46.

there is a dangerous bark. When his master, after an absence, returns home, the bark expresses joy. If another dog is seen, there is an excited bark. If something is desired, there is an imploring bark. All these barks are interjections. They differ as the ideas to be expressed differ; but every bark is the same for the same idea. The dog can also speak by gestures as when he wags his tail, bares his teeth and erects his ears or the hair on his back. R. L. Garner, who spent many years studying the vocal abilities of monkeys, was convinced that they communicated by vocal sounds. He was able to distinguish about 30 different sounds each of which stood for a definite idea.

We may then be certain that man's earliest speech took the form of interjections expressing many different ideas just as in the case of animals. F. Max Muller has called this the "pooh-pooh" theory because it traces the beginnings of speech back to unconscious cries and interjections such as pooh-pooh, ouch, pshaw, and boo-hoo. Gestures would also be early used in communicating ideas. Facial and bodily expression would also be common. These are often used today. A man visited a tribe of Indians without his knowing a word of their language or their knowing a word of his. He was very hungry. He worked his jaws and pointed

to his mouth. The Indians at once brought him food.

A very early step in communicating would be by the use of imitative words which reproduce the auditory image of external phenomenon. Such would be rustle, crackle, bang, thud, patter, pop and puff. A dog was a bow-wow. A crow was a caw. The wind in the trees was a swish. F. Max Muller has happily called this the "bow-wow" theory of speech. Another step would be the use of symbolic or suggestive words. These reproduce the kinesthetic, muscle-sensation, image of some act similar to the external phenomenon. Such words would be bubble, trouble, muddle, huddle, strike, slap, beat, hit and knock.

These theories have, undoubtedly, much truth in them and were important factors in the evolution of speech, but they probably do not explain all the words which came into use. E. E. Free says:[65] "Some words may have come, for instance, out of the natural chatter of monkeys and apes. Other words may have originated in bodily sounds like laughs or sneezes. Still others from the natural and unconscious sounds that accompany various kinds of bodily effort, like the deep panting of a runner or the grunts that we give when we lift heavily on something. We need not try to trace

[65] E. E. Free: *Popular Science Monthly*, 1923, Aug., p. 24.

these word origins in detail. The point that is important in the story of human evolution is that words can be formed in perfectly natural and simple ways; that this great human attribute of speech, so important for all that man has done and hopes to do in the world, may have grown up, naturally and gradually, just as all the other human attributes have done. The hypothesis of a special creation is no more necessary for speech than it is for the origin of man himself."

The origin of language is very difficult because we have no data between the interjectional stage and the true speech of man. The most primitive peoples of today, even those still living in the old stone age, have well developed languages. It does not seem possible that a half-speech or a transitional language will ever be discovered. This missing link will probably never be found. P. Giles writes:[66] "Notwithstanding the great number of books that have been written on the origin of language in the last three and twenty centuries, the results of the investigations which can be described as certain are very meagre." R. R. Marett says:[67] "Unfortunately, we entirely lack the means of carrying back the history of human speech to its first beginnings."

We, then, do not know what the primitive lan-

[66] P. Giles: *Darwin and Modern Science*, 1909, p. 518.
[67] R. R. Marett: *Anthropology*, 1912, p. 132.

guage of man was. It was long supposed that Hebrew was the first tongue. This was based on the tradition in Genesis 2. We now know that Hebrew is a late Semitic language, not much older than 1000 B.C. There are three great families of speech: Indo-European, Semitic and Slavic. As far as we know these are unrelated to each other. After making all allowance for the rapid changes in speech in its early stages, man must have begun to use the known families of speech at a very early period, probably long before 5000 B.C. H. E. Ryle writes:[68] "We are led to suspect that the mystery of the origin of distinct languages belongs to the dim obscurity of the infancy of the human race, an infinitely remote and prehistoric age."

CHAPTER XII

Writing

THE invention of writing was a most important step in the advancement of civilization. We can hardly imagine what the world would be today without writing. No writing has been found during the prehistoric period, which ended about 5000 B.C., but we do find many pictures, chiefly of animals, in the caves of France and Spain. These date from about 50000 B.C. to 20000 B.C.

[68] H. E. Ryle: *Commentary on Genesis*, 1914, p. 145.

The pictures have probably a religious significance, and represent ideas which the supernatural spirits could interpret. Every picture was thus a prayer imploring the spirits to multiply and protect the animals pictured. We may then call these pictures the earliest known written prayers. While the data for the origin of writing are so scanty in the prehistoric period, we are able to get considerable information from the writing found in Babylonia and Egypt, and also among the American Indians.

All writing was at first in pictures. These are called ideograms. They would represent certain ideas. In Babylonia the picture of a star represented divinity. A rough oblong with several cross lines signified a field with furrows for irrigation. Five short horizontal lines meant the outstretched fingers. An Egyptian tablet pictures a falcon holding in its bill a rope which passes through the nose of a man. The signs for 5000, a harpoon and a lake follow. The inscription reads: "The king carried captive 5000 prisoners at the Harpoon lake." Similarly among the American Indians a piece of bark with the rude drawing of a hunter and a number of buffaloes would be easily read by all tribes although their languages might be quite different.

Another step in writing was the use of signs to

represent different words having the same sound. In English an example of such words would be "meat," "meet" and "mete." Here one sign would be used for all these words. The particular meaning could only be derived from the context. A third advance was the representation of syllables by signs. A picture might stand for one or more syllables. Thus the syllables "bab" and "el" form "Babel." "Mar" and "duk" would be "Marduk." "Ash" and "shur" make "Ashshur." "Bar" and "sip" give "Barsip." "Na" and "bu" form "Nabu."

The final step in the evolution of writing was the use of an alphabet with simple or elementary sounds of the voice. It is a question as to how this developed. Some say the sign stood for the whole word but the initial sound was only used. This is known as the principle of acrophony. Others believe that the sign represented a syllable and changed by becoming a simple sound. Thus "sa" becomes "se" and then "s." The Babylonians never got beyond the syllabic stage of writing. The Egyptians reached the alphabetic stage but did not always use it.

Our English alphabet is derived from the Egyptian hieroglyphic through the hieratic, Phœnician, Hebrew, ancient Greek, later Greek and Latin. Thus our letter "A" goes back to the hieroglyphic

sign for "eagle." This has been proved quite recently by the inscriptions found in the desert of Sinai in 1906 by F. Petrie. These Semitic inscriptions are the oldest known alphabetic form of writing. They may be dated about 1800 B.C. An exhaustive study of these very interesting and important inscriptions has been made by R. F. Butin.[69]

CHAPTER XIII

The Family

A. DEFINITION OF FAMILY

THE word "family" comes from the Latin, *familia,* meaning a household consisting of parents, children and slaves. "Family" is thus defined in Webster's dictionary:[70] "A group comprising immediate kindred; especially the group formed by parents and children, constituting the fundamental social unit." F. G. Peabody says:[71] "Here is a social group which, in its present form, is by no means an original and outright gift to the human race, but is the product of a vast world-process of social evolution, through which various types of domestic unity have been in turn selected

[69] R. F. Butin: *Harvard Theological Review,* vol. 31, pp. 9-67.
[70] N. Webster: *New International Dictionary,* 1920, p. 789.
[71] F. G. Peabody: *Jesus Christ and the Social Question,* 1901, p. 134.

and, as it were, tested, until at last the fittest has survived."

The word "family" is used in several other senses. We speak of the Washington family, meaning all persons who are blood relations of George Washington. "Family of languages" is a common term for certain languages closely related, as French, Spanish and Italian. The term "good family" is applied to those who come of good ancestrage. The word "family" is also used of related groups in the animal and plant kingdoms. We speak of the wolf family and the orchid family.

B. SUB-HUMAN FAMILY LIFE

There are groupings more or less permanent among the creatures below man.[72] This suggests a family relation. Birds pair, build nests and care for the young. In the case of some mammals the male bestows no care upon the young, but the female does. Dogs and cats are examples. Among the anthropoids there is an approximation to the human family. The gorillas are often found in groups of one male and several females. The male gorilla is said to build a nest high up in the trees for the females and the young, while he sleeps at

[72] E. N. Fallaize: *Encyclopædia of Religion and Ethics*, edited by J. Hastings, vol. 5, p. 716. C. A. Ellwood: *Sociology and Modern Social Problems*, 1924, p. 96.

the foot of the tree so as to protect the others. Here are the essential features of a family life—provision and protection for female and young. On similar bases the human family rests, but here the relation is more permanent because children need the care of parents for a long period.

C. ORIGIN OF THE FAMILY

There are two main views as to how the family originated. One is that the original social unit was a group. The family did not then exist. There was no individual marriage but promiscuity. Paternity was uncertain, and so the children belonged to the group and not to an individual family. It is said that this condition produced the matriarchate where descent is traced through the mother. Hence arose the close connection between the mother's brother and her children. The family is looked upon as a late development slowly evolved from the larger group. L. H. Morgan[73] and J. F. McLennan[74] accept this view.

The other opinion is that the primitive social unit was a single family consisting of father, mother and children. Man is not a gregarious creature, because it is difficult to obtain food. It is all he can do to provide for one family. Thus an economic reason would be favorable for the fam-

[73] L. H. Morgan: *Ancient Society*, 1878.
[74] J. F. McLennan: *Primitive Marriage*, 1865.

ily unit. It is found that where a few families are associated they tend to separate in times of stress. Peoples living today in primitive cultures, are usually grouped in families. J. J. Atkinson,[75] A. Lang[76] and E. A. Westermarck[77] support the opinion of the priority of the family. Similarly C. Darwin says:[78] "We may conclude from what we know of the jealousy of all male quadrupeds, armed as many of them are with special weapons for battling with their rivals, that promiscuous intercourse in a state of Nature is extremely improbable. The most probable view is that man originally lived in small communities, each man with a single wife, or, if powerful, with several, whom he jealously guarded against other men."

D. MONOGAMY AND POLYGAMY

It is the general belief of anthropologists that there was originally one human pair. There would thus be monogamy. This is the tradition in the second chapter of Genesis where we have one man and one woman, Adam and Eve. As the race increased, polygamy, probably, very early arose. In Genesis 4:19 we read: "And Lamech took unto him two wives." Several causes could produce polygamy. Women, captured in war, often became

[75] J. J. Atkinson: *Primal Law*, 1903.
[76] A. Lang: *Social Origins*, 1903.
[77] E. A. Westermarck: *History of Human Marriage*, 1891.
[78] C. Darwin: *Descent of Man*, 1871, vol. 2, p. 361.

the wives of the victors. Female slaves would sometimes be secondary wives or concubines as in the case of Hagar (Gen. 16:2), Bilhah (Gen. 30:4), and of Zilpah (Gen. 30:9). A man might also desire several wives for economic reasons, since women in primitive society do an immense amount of hard work. Polygamy is very common today among primitive peoples. Some Australian aborigines in visiting other tribes, take temporary wives. This is known as localized polygamy. In West Africa the same custom prevails among native traders. The Kafirs and Bantus have a separate hut for each wife and children.

It is interesting to note that where polygamy exists today there is, in certain quarters, a tendency toward monogamy. This is seen especially in Mohammedan lands where the Koran allows four wives. The main reasons for this movement are threefold. The sexes are about even in numbers. Economic conditions make it more easy for a man to support one wife and one family. A plurality of wives is apt to cause jealousy, strife and hatred. Experience shows that in the long run monogamy is the ideal marriage relation. H. Spencer says:[79] "It is clear that monogamy has been growing innate in civilized man and this relationship is manifestly the ultimate form."

[79] H. Spencer: *Principles of Sociology*, 1876, vol. 1, pp. 673, 752.

E. POSITION OF HUSBAND, WIFE AND CHILDREN

The duty of the husband would be to provide food, shelter and protection for his family. His occupation would be hunting, fishing, pastoral or agricultural, depending upon the grade of culture reached. In the hunting and fishing stage, man would be away much of the time, so that the woman was prominent. This may have been the origin of the matriarchate. In general the man was supreme, and the woman subject to him. War tended to give man a commanding position. This is generally true among the aborigines of Australia, the African peoples and the American Indians.

The woman in primitive times was a drudge. She cared for the children, provided fuel, carried the water, did the cooking and made the clothing for the household. She usually cultivated a patch of ground near the habitation where cereals, vegetables and fruits would be raised. The economic value of woman was thus very great. She was also an accession of strength to the family from the outside. Furthermore, she was the mother of future members of the tribe. The physiological facts of paternity were not known in the earliest stages of society, so the position of the woman would be important. The wife may have been stolen from her family, or the man may have served a period

of time for her, or she may have been purchased. All three methods are known to primitive peoples.

The early care of children devolved on the mother. Boys after infancy would be looked after by the father. In the case of matrilineal society they would be cared for by the maternal uncle until initiated into manhood. Maternal aunts would have charge of the girls. In general, children lived with parents until marriage; or in case of boys, until puberty. In Melanesia, there are men's houses where males live from puberty until marriage. Among some primitives, communal caves or houses are found where large numbers live but each family has its own hearth. In Borneo, as many as 200 live under one roof, but each family has separate apartments. We may compare the long houses of the American Indians, where several families live under the same roof.

In considering the prehistoric family, it has been necessary to study family conditions as they exist among primitive peoples of today. From this source we may infer to some extent in a general way the family life of prehistoric man.

Part V

PREHISTORIC RELIGION

CHAPTER I

What Is Religion?

IT is not easy to define religion so as to get a definition covering all religions from the most primitive to the most advanced. In the past, and sometimes even in the present, definitions of religion have applied only to the Christian religion or even to some denominational phase of it. C. C. J. Webb says:[80] "I do not myself believe that religion can be defined." J. A. Thomson writes:[81] "We cannot define religion, but we use the word to include all recognition—whether practical, emotional or intellectual—of an independent spiritual reality."

While it may be difficult to define religion, a great many definitions have been given. John Morley has declared: "There are said to be ten thousand definitions of religion." The word "religion" comes from the Latin *religio,* meaning to bind. Hence the idea is duties, restrictions imposed upon one, being bound to a superior power or powers. A few of the more comprehensive definitions of

[80] C. C. J. Webb: *Group Theories of Religions,* 1916, p. 59.
[81] J. A. Thomson: *Introduction to Science,* 1911, p. 193.

religion are here given. F. G. Speck says:[82] "Religion is that which expresses in life the relationship between man and the supernatural realm." E. B. Tylor writes:[83] "Religion is the belief in spiritual beings." A. Lang declares:[84] "Religion involves the belief in the existence of an Intelligence or Intelligences not human." J. G. Frazer remarks:[85] "Religion consists of a propitiation or conciliation of powers superior to man which are believed to direct and control the course of nature and human life." M. Muller says:[86] "Religion is a perception or apprehension of the Infinite."

CHAPTER II

Sources of Prehistoric Religion

THERE are several sources for our knowledge of prehistoric religion. The primitive peoples, living in the world today, furnish a good deal of information. H. F. Osborn says:[87] "We still find many very primitive types of humanity living in remote and isolated parts of the earth." Such peoples are found in New Guinea, Borneo, Tasmania, Australia, central Africa, Brazil, Labra-

[82] F. G. Speck: *Religions of Past and Present*, edited by J. A. Montgomery, 1918, p. 9
[83] E. B. Tylor: *Primitive Culture*, 1874, vol. 1, p. 424.
[84] A. Lang: *The Making of Religion*, 1900, p. 45.
[85] J. G. Frazer: *Golden Bough*, 1900, vol. 1, p. 63.
[86] M. Muller: *Philosophy of Religion*, by D. M. Edwards, 1924, p. 139.
[87] H. F. Osborn: *Man Rises to Parnassus*, 1927, p. 83.

dor, Malay Straits and the Crocodile Islands. The religions of these peoples are being studied, and much light is thus thrown on prehistoric religion.

Information is also derived from the artifacts of primitive peoples who have long since vanished from the earth. These remains consist of paintings, sculptures, and engravings of persons, animals and birds which have a religious significance. Hands minus certain fingers are painted on cave walls. The fingers were probably sacrificed. Skulls with holes may have a religious significance such as letting the evil spirit out which caused some ailment. Amulets, worn on the person as charms, are also found. There are stone altars for offerings.

A third source of knowledge is derived from vestiges of primitive religions found in the religions of civilized peoples. Examples of such are found in the Old Testament and among Arabian tribes. C. A. Ellwood says:[88] "It may be pointed out, however, that these essential elements in religion have persisted in all phases of its development and survivals of them are to be found even in the most advanced religions." W. R. Smith in *Religion of Semites,* 1894, and S. I. Curtiss in *Primitive Semitic Religion Today,* 1902, have discovered many primitive survivals among present-day Semitic peoples.

[88] C. A. Ellwood: *Cultural Evolution,* 1927, p. 230.

CHAPTER III

The Universality of Religion

RELIGION seems to be universal among mankind. No people have yet been found without it. From the most primitive to the most advanced peoples some type of religion is present. The testimony of scholars abundantly proves this. G. F. Moore writes:[89] "It is now the prevailing opinion among anthropologists that religion in some form or other is universal. No people or tribe has been discovered which has not something that answers for it the purposes of religion, whether we think it respectable enough to be dignified by that name or not." A. S. Peake says:[90] "The frequent assertions that there are tribes without religion are not endorsed by the most competent anthropologists, though the forms it assumes may seem, through their unfamiliarity, to have no definitely religious character. To the savage, religion is often one of the main concerns of life, bound up with all his dearest interests and inseparable from all his activities."

These statements are amply proved by studying present-day primitive peoples. They all have some form of religion. It may often seem to us very rude, crude and superstitious, but it is dear to

[89]G. F. Moore: *Birth and Growth of Religion*, 1923, pp. 1, 2.
[90]A. S. Peake: *Christianity, Its Nature and Origin*, 1908, p. 9.

them and they derive much help from it. What B. Spencer and F. J. Gillen say[91] of the Australian aborigines is probably true of all primitive peoples: "And it was discovered that religion occupies by far the greater part of all their thoughts and interests." There are also plenty of indications that the prehistoric peoples, living before 5000 B.C., were deeply religious since they have left many artifacts which had a religious significance. The words of Plutarch, 40-120 A.D., written so long ago, seem absolutely true today. He says: "You may find communities without walls; without letters; without kings; without money; with no need of coinage; without acquaintance with theatres and gymnasia; but a community without holy rites, without a God, that uses not prayer; without sacrifice to win good or to avert evil—no men ever saw or will see."

CHAPTER IV

The Origin of Religion

A. SUB-HUMAN RELIGION

How did religion originate? Did the precursors of man have a religion? The primates nearest to man—gorilla, chimpanzee, orang and gibbon—

[91] B. Spencer and F. J. Gillen: *Northern Tribes of Central Australia*, 1904, quoted in *Expository Times*, vol. 16, p. 7.

apparently have no religion. The same is probably true of all the other creatures below man. Some have wondered if the dog's devotion to his master or mistress was not a kind of religion. Maeterlinck says:[92] "The dog is the only animal that really loves man." Some one has said: "The dog looks to his master as a man looks up to God. He gives him unqualified, unstinted devotion. He is ready at any time to sacrifice his comfort and even lay down his life for the man to whom he is attached."

C. H. Toy writes:[93] "In regard to religious feeling, we observe in certain animals, especially the domesticated dog, an attitude of dependence and devotion toward the master as a superior Power that is similar to the attitude of man toward a Deity, only with more affection and self-surrender. But in the animal, so far as we can judge, the intellectual and ethical conceptions do not come to their full rights—there is no idea of a Power possessing moral qualities and controlling all phenomena. The beast, therefore, is not religious in the proper sense of the term. But between the beast and the first man the difference may have been not great."

C. A. Ellwood says:[94] "So far as we know, the brutes have little or nothing which foreshadows

[92] M. Maeterlink: *Moral Welfare*, 1928, April, p. 7.
[93] C. H. Toy: *Introduction to History of Religions*, 1913, p. 7, note 2.
[94] C. A. Ellwood: *Cultural Evolution*, 1927, p. 225.

religion; but, for that matter, the brutes have no culture. Religion is peculiar to man alone, just because the animals below man are concerned only with objective surroundings, while man is concerned with a world of values." Our inference, then, is that the creatures below man have no religion.

B. PRIMITIVE REVELATION

Did prehistoric man have a complete revelation of religion given to him at the beginning? This was a common view until quite recent times. It was based on the idea of the special creation of man who was endowed with all religious knowledge. All the non-Christian religions were looked upon as lapses from this original, true religion. Robert South, 1633-1716, said:[95] "An Aristotle was but the rubbish of an Adam, and Athens the rudiments of Paradise." A preacher in the Highlands of Scotland, many years ago, declared:[96] "The whole of theology was given to our first parents in the garden of Eden, and there has been no development in theology since that time, but only apostasy."

A. B. Davidson writes:[97] "The hypothesis of a primitive religion, the remains of which lingered

[95] R. South: *Theological Studies*, Victoria Univ. Manchester, 1905, p. 266.
[96] *American Journal of Theology*, 1904, vol. 8, p. 438.
[97] A. B. Davidson: *Old Testament Theology*, 1904, p. 312.

among the peoples of the world, and expressed itself through sacrifice, is precarious. It certainly cannot be proved." All the known facts of anthropology are against the belief in a primitive revelation of religion. Primitive man, at first, was like a child with no religion whatever. He was neither religious nor irreligious but neutral. He had, however, the potentiality of religion.

C. SELF-PRESERVATION

The most influential factor in the development of religion in primitive man was probably self-preservation. G. F. Moore writes:[98] "If we seek a motive, universal, supreme, perpetual, it will be found in the impulse to self-preservation." Other motives, no doubt, come in but these were probably incidental. Thus, D. Drake says:[99] "When we study religion historically, we find that it had its beginning in certain attitudes natural to primitive man—wonder, fear, hope, thankfulness, a sense of helplessness, of dependence, of mystery." C. A. Ellwood remarks:[100] "Perhaps the earliest and deepest concept which lies at the root of religion is the concept of power. The world manifested itself to the primitive mind as a world of power which worked in most marvellous ways."

[98] G. F. Moore: *Birth and Growth of Religion*, 1923, p. 3.
[99] D. Drake: *Journal of Religion*, 1927, vol. 7, p. 117.
[100] C. A. Ellwood: *Cultural Evolution*, 1927, p. 227.

Examples of self-preservation, as the main motive, will readily occur to everyone. Lightning strikes the rude hut of primitive man and burns it. He implores the lightning not to do so again. A rainstorm destroys his cultivated fields. He prays to the rain not to destroy his crops any more. A river overflows and does much damage. He begs the river to cease bringing these calamities. A pestilence breaks out and many die. Primitive man seeks to appease the wrath of the pestilence.

Trees supply fruit, fuel and wood for many uses. He worships the trees for their goodness. This is the origin of the sacred trees in the Old Testament which are vestiges of primitive tree worship. Examples of such are found in Genesis 12:6, Judges 4:5 and 9:37. The modern Christmas tree and May pole are vestiges of tree worship. Rocks furnished shelter and materials for stone implements and other purposes. Primitive man thanks these rocks for their kindness. This is the origin of sacred stones, rocks, obelisks and pillars. Survivals of this are found in Genesis 28:18, Exodus 24:4, Joshua 24:26, Judges 9:6, I Samuel 7:12 and Hosea 7:4.

Springs furnished water. He blesses the spring. Thus arose sacred springs (Gen. 14:7, Josh. 15:7). The sun and moon gave light by day and

night. These luminaries were worshipped for their great goodness. Mount Sinai and the Wilderness of Sin were localities where the moon god was worshipped (Exod. 19:18 and 16:1). Three cities in Palestine are called Bethshemesh, sanctuary of the sun (Josh. 15:10 and 19:38, Judg. 1:33). Sun worship is also referred to in Deuteronomy 4:19 and II Chronicles 34:7. It is interesting to note in Genesis that Abraham's acts of worship are usually connected with trees, those of Jacob with stones, and those of Isaac and Ishmael with springs or wells.

CHAPTER V

Naturism

THIS worship of natural forces and objects may be called naturism. This would be the most primitive religion. J. de Morgan says:[101] "In the study of prehistoric religion we must thus reject any idea of a unique divinity and recognize that naturism, whether it concerns the astral bodies or confines itself to terrestrial phenomena, is at the root of all early religion." At this stage of religion primitive man did not worship any spirit or divinity in the forces or objects but just the forces and

[101] J. de Morgan: *Prehistoric Man*, 1924, p. 249.

objects themselves. They were to blame for his calamities. They were the sources of his blessings.

Examples of incipient naturism are often seen in children. A child stubs its toe against a chair. The child kicks the chair as a punishment. When the wind blows away its toys, the wind is scolded. The rain is upbraided when it washes away the child's sand pile. In all these cases the child never thinks of anything but the chair, wind and rain. This is exactly how prehistoric man felt toward the forces and objects of nature. He was just a child in religion.

CHAPTER VI

Animism

THE next type of prehistoric religion was probably animism or polydemonism. This is a development from naturism. Man began to think and reason. He realized that within himself was a something manifesting itself through the body. So, by analogy he infers that in natural forces and objects there is a something living and residing in them. He probably had no name for it at first. His ideas about it would be very vague and indefinite. We call this something numen, demon, spirit, mind and soul. The word animism comes from *anima,* meaning air, breath, life, soul and mind. Polyde-

monism means many spirits. This mysterious something in natural forces and objects was called by the Melanesians, *mana;* by the Algonquins, *manitou;* by the Iriquois, *orenda,* and by the Sioux, *wakonda.*

W. Max Muller writes:[102] "Animism is a very wide-spread form of primitive religion. It has no gods in the sense of the advanced pagan religions; it only believes that earth and heaven are filled by countless spirits, either sedentary or wandering. These spirits can make their earthly abode in men, animals, or plants, or any object that may be remarkable for size or form. Some scholars claim that all religions have sprung from a primitive animism." This was the view held by a very distinguished anthropologist, E. B. Tylor, 1837-1917, in a famous work, *Primitive Culture,* first published in 1871.

Some American Indian tribes believed that animals and plants were animated by spirits. They regarded certain of these spirits as powerful and active. Such animals were the buffalo, eagle, rattlesnake and some other creatures. The plants included cedar, cottonwood, corn and tobacco. M. W. Stirling found that the pygmies in New Guinea had an animistic religion. On the Mentawei Islands, off the west coast of Sumatra, E. M.

[102] W. Max Muller: *Egyptian Mythology,* 1918, p. 15.

Loeb reports that the natives believe that all things, animate and inanimate, are possessed of spirits.

There are three main types of animism: 1. The lesser animism—spirits of river, lake, mountain, sea, tree, rock, bird and snake. 2. The greater animism—spirits of sun, moon, stars and earth. 3. The spirits of the dead. Primitive man believed that the spirit survives death, and that its power for good or evil was greatly increased by death. Ancestor worship was probably very common in the world of primitive man.

E. B. Tylor says:[103] "The theory of the soul, animism, is one powerful part of a system of religious philosophy, which unites, in one unbroken line of mental connection, the savage fetish-worship and the civilized Christian. The divisions which have separated the great religions of the world into intolerant and hostile sects are for the most part superficial in comparison with the deepest of all religious schisms, that which divides animism from materialism."

CHAPTER VII

Totemism

ANOTHER phase of prehistoric religion is totemism. Here animals, plants and inorganic ob-

[103] E. B. Tylor: *Primitive Culture*, 1874, vol. 1, p. 501.

jects are venerated. They are regarded as in some way related to the groups which worship them. J. G. Frazer says:[104] "A totem is a class of natural phenomena or material objects, most commonly a species of animals or plants, between which and himself the savage believes that a certain intimate relation exists." In speaking about the aborigines of America and Australia, W. R. Smith writes:[105] "The totem or kobong of these peoples is an animal or plant or heavenly body appropriated as fetich to all persons of a certain stock. These persons believe that they are descended from the totem who is reverenced as a protector and friend and whose name they bear. The line of descent is through the mother, who gives her totem to her children. Persons of the same totem are not allowed to marry."

The following totem animals are found among the American Indians: crane, catfish, loon, bear, martin, wolf, tortoise, turkey, fox, eagle, beaver, antelope, raccoon, carp, turtle and caribou. These totems were sometimes painted on the arms, breasts and legs. In Australia the more common totem animals are adder, cat, swan, snake, cockatoo, crow and dingo. In Africa among the negro and Bantu peoples these totems are found: leop-

[104] J. G. Frazer: Webster's *New International Dictionary*, 1920, p. 2176.

[105] W. R. Smith: *Lectures and Essays*, 1912, p. 455.

ard, buffalo, dog, parrot, plantain, cornstalk, and red earth. Each of the 42 nomes in prehistoric Egypt had an animal emblem which was represented on a standard. Some of these totems were: ibis, crocodile, cat, gnat, ram, fish. All the Egyptian gods were probably at first animal and bird forms. When these divinities became anthropomorphic, they had animal and bird forms only in part, usually in the head. The other part was human.

Among the Arabs many groups had totems. These were: wolf, ibex, fox, locust, dove, bull, colt, kite, hyena, lizard, eagle, hedge-hog, dog, whelp, lion, jerboa, panther, sun and moon. The Israelites probably passed through a totem stage. Vestiges of this are found in certain Old Testament names, as W. R. Smith has shown:[106] Rachel = ewe, Leah = wild cow, Caleb = dog, Nun = fish, Shaphan = rock badger, Nahash = serpent, Deborah = bee, Oreb = raven, and Zeeb = wolf.

Totemism would arise in various ways. Primitive man lived on certain animals, fishes and plants. These would be venerated so that they might multiply. This is sympathetic magic. It was natural for family, clan and tribe to assume these names as totems. Other totems could come from a mystical power in names. The group hearing the

[106] W. R. Smith: *Lectures and Essays*, 1912, p. 470.

names would be recipients of qualities and characteristics of the objects venerated. E. S. Hartland says:[107] "The influence of names, and the inveterate tendency to regard a name as a real objective existence belonging to and having a mystical connection with the person signified by it are practically universal in the lower cultures." Certain occupations might originate totemism. Persons dealing in crabs, turtles and salmon would adopt these totems. Others engaged in pasturing certain animals, as cows, sheep and goats, would take these as totems. Still others cultivating plants would have plant totems. Totemism is so widespread among primitive peoples that E. Durkheim considers[108] it the most primitive stage of religion.

CHAPTER VIII

Primitive Sacrifice

SACRIFICE occupies a prominent place in primitive religion. There are two kinds of sacrifices, bloody and bloodless. The former consist of slain animals. The latter were offerings of corn, wine, oil, fruit, bread and the like. Both kinds are represented in the offerings of Cain and Abel (Gen. 4:2-4). Man would naturally give the best which

[107] E. S. Hartland: *Encyclopædia of Religion and Ethics*, edited by J. Hastings, 1925, vol. 12, p. 406.

[108] E. Durkheim: *Elementary Forms of Religion*, 1915, book 2.

he had to his divinity. He had no money, jewelry, clothing or anything else of value except food. His most prized food was flesh of sheep, lambs, reindeer, horse, bison and the like. So, primitive man believed that flesh offerings would be more highly appreciated by the divinity. The primitive idea in such offerings was a gift to express thanks for past kindness, to make request for new favors and to appease the angry divinity.

Examples of primitive sacrifice are found among primitive peoples today. In the Solomon Islands, northeast of Australia, yams are offered with the words:[109] "This is yours to eat." In the Society Islands, southeast of Samoa, the worshippers say: "Here, Tari, I have brought you something to eat." In Indo-China, east of Siam, the offerer says: "Taste, O goddess, these first-fruits which have just been reaped." In the East Indies northwest of Australia, vessels filled with rice are presented as a thank-offering to the gods. In the Melucca Islands, west of New Guinea, first-fruits are offered as a token of gratitude.

There are vestiges of these primitive sacrificial ideas in the Old Testament. "And out of the basket of unleavened bread, that was before Jehovah, he took one unleavened cake, and one cake of oiled bread, and one wafer, and placed them on

[109] F. B. Jevons: *Int. to Study of Comparative Religion,* 1908, pp. 180 ff.

the fat, and upon the right thigh—they were a consecration for a sweet savor; it was an offering made by fire unto Jehovah" (Lev. 8:26, 28). "And thou shalt set upon the table showbread before me always." In Leviticus 24:5, 6 we are told that there were twelve cakes and two piles on this table. When these words were written the Hebrew had, of course, spiritualized all these offerings; but the language goes back to a time when their ancestors believed that the divinity in some way really enjoyed the material offerings.

CHAPTER IX

Primitive Morality

MORALITY comes from the Latin, *mos,* plural *mores,* meaning custom usage. Ethics is derived from the Greek, *ethos,* having a similar meaning. So morality is what conforms to custom or usage. How did primitive man know what was the proper custom or the fitting usage? The clan tribe or group would decide this. Experience showed that certain lines of conduct were for the good of the community. These would be moral and obligatory on each member of the community. On the other hand, certain courses of action were found to be injurious to the social group. These would be regarded as immoral. In all cases the clan, tribe or

community gave the decision as to what was right or wrong. The individual does not count in the primitive stage of society. He is only part of the whole.

F. Hutcheson, 1694-1746, writes:[110] "That action is best which procures the greatest happiness for the greatest number; and that worst, which, in like manner, occasions misery." J. Benthan, 1748-1832, regards this as a sacred truth and as the foundation of morals and legislation. While Hutcheson was the first to use the phrase, "the greatest happiness of the greatest number," the thought is found in the writings of ancient thinkers, especially Democritus, 460-375 B.C. However, primitive man, thousands of years before the age of Greek philosophers, had the same idea which was at the basis of his conception of morality.

G. F. Moore writes:[111] "The words 'morals,' 'morality,' 'ethics,' 'ethical,' show in their etymology the primitive association of the ideas with the custom of the community. No human society, even of the most rudimentary kind, could exist without customs, collectively constituting its mores, to which all its members are bound to conform, and habitually do conform. In this con-

[110] F. Hutcheson: *Original of Our Ideas of Beauty and Virtue*, 1753, p. 185.

[111] G. F. Moore: *Birth and Growth of Religion*, 1923, p. 64.

formity, and in nothing else, primitive morality consists." J. A. Thomson says:[112] "It is probable that the first moral judgments were social, not individual. A certain action disturbed the community and worked a public expression of disapproval, which was echoed in the individual and gradually became an individual criterion. Another action thrilled the community with admiration and worked a public expression of approval, which gradually became an individual touchstone. It was recognized that good conduct made on the whole and in the long run for stability and harmony of life; that bad conduct made, on the whole and in the long run, for discord and disintegration. There grew up rational corroborations of moral judgments till gradually, as Adam Smith, 1723-1790, said, 'the moral faculties became the vicegerents of God within us.' "

To primitive man, morality had nothing to do with religion. The spirits, worshipped, had no concern with a person's doings in the social group. Their sole interest seems to have been in having the proper rites, ceremonies and offerings rendered to them so that these spirits might render appropriate and needed blessings to their worshippers. E. W. Hopkins writes:[113] "Ethics thus begins without any religious sanction whatever. The

[112]J. A. Thomson: *What Is Man*, 1924, p. 160.
[113]E. W. Hopkins: *Origin and Evolution of Religion*, 1923, p. 247.

clansman must do as the clan does. With morality and sin in the first instance the gods have nothing to do."

CHAPTER X

Primitive Immortality

PRIMITIVE man seems to have believed in immortality at a very early period. This is proved by the contents of the oldest graves which may be dated not less than 50000 B.C. In them we find implements, weapons, ornaments, vessels and food. All these articles were for the use of the deceased in a future life. As far as known, all peoples in primitive cultures today have a firm belief in another world. A good example would be the stone age people of New Guinea. We may call immortality a universal belief among primitive peoples.

The opinions of three scholars may be quoted. Sir James G. Frazer writes:[114] "The question whether our conscious personality survives after death has been answered by all races of men in the affirmative. On this point skeptical or agnostic peoples are nearly, if not wholly unknown." L. B. Paton says:[115] "Anthropologists are agreed that no savage race exists which does not believe in

[114] J. G. Frazer: *Belief in Immortality*, 1913, vol. 1, p. 33.
[115] L. B. Paton: *Spiritism and Cult of Dead in Antiquity*, 1921, p. 3.

some sort of immortality and practice some rites in honor of the dead. In view of these facts, it is evident that immortality was one of the original beliefs of our race." E. B. Tylor, in describing primitive man and the lower races, speaks[116] of "the comparative universality of their belief in the continued existence of the soul after the death of the body."

As far as we know, the creatures below man have no idea of a future life. How did man attain to this belief? Dreams were probably the main ground for believing in a life after death. It should be remembered that to primitive peoples dreams are just as real as experiences in waking moments. Primitive man would dream of visiting a distant place, tribe, clan, individual, mountain, river or wood; but his body does not go because his friends have seen it remain just where he went to sleep. In death the body remains as in sleep but the inference is that the person has gone away and does not return.

Primitive man would dream of a dead person and would see him. He must be alive or he could not be seen in the dream. F. B. Jevons says:[117] "If, however, the dead appeared only in his dreams, their existence after death might seem to

[116] E. B. Tylor: *Primitive Culture*, 1874, vol. 2, p. 1.
[117] F. B. Jevons: *Int. to Study of Comparative Religion*, 1908, p. 38.

be limited to dream-time. But as a matter of fact, they appear to him in his waking moments, also: ghosts are at least as familiar to the savage as to the civilized man; and thus the evidence of his dreams, which first suggested his belief, is confirmed by the evidence of his senses."

Part VI
CONCLUSION

CHAPTER I

Retrospect

WE have briefly surveyed the story of prehistoric man. It has been shown that he began, materially, intellectually, morally and spiritually at the lowest rung of the ladder. The Apostle Paul, in I Corinthians 13:11, says: "When I was a child, I spoke as a child, I thought as a child." Prehistoric man was in the childhood stage of civilization. This is exactly his condition as described in Genesis, Chapters 1 and 2. Adam and Eve, although full-grown persons, did not know the difference between good and evil.

We must, however, judge man by his end and not by his beginning. The great science of astronomy, now peering into the heavens with a 200-inch telescope, began as astrology studying the stars for omen purposes. Chemistry, so important in the life of today, had its rise in alchemy, the superstitious idea of transmuting baser metals into gold by a philosopher's stone. So from beginnings, crude, simple, and superstitious, God, in His providence, has been leading the race onward and upward. Some have made great progress, others very

slow progress, and some have remained quite static. The words of Jesus in Mark 4:28, are eminently true of the history of man: "First the blade, then the ear, then the full grain in the ear."

CHAPTER II

Prospect

As we read the past history of man, what shall we think of his prospect? Shall we be optimists or pessimists in regard to his future? Four outstanding masters in their respective fields of knowledge have given the true answer. Charles Darwin, 1809-1882, says:[118] "Man may be excused for feeling some pride at having risen, though not through his own exertions, to the very summit of the organic scale, and the fact of his having thus risen, instead of having been aboriginally placed there, may give him hope for a still higher destiny in the distant future."

William James, 1842-1910,[119] writes: "Bone of our bone, and flesh of our flesh, are these half-brutish prehistoric brothers. Girdled about with the immense darkness of this mysterious universe even as we are, they were born and died, suffered and struggled. Given over to fearful crime and passion, plunged in the blackest ignorance, preyed

[118] C. Darwin: *Descent of Man*, 1922, p. 946.
[119] W. James: *Human Immortality*, 1898, p. 33.

upon by hideous and grotesque delusions, yet steadfastly serving the profoundest of ideals in their fixed faith that existence in any form is better than non-existence, they ever rescued triumphantly from the jaws of ever-imminent destruction the torch of life which, thanks to them, now lights the world for us."

E. G. Conklin affirms:[120] "However imperfect, irrational and anti-social mankind may be, we may feel confident that in the long ages of future evolution no other greatly superior animal will appear upon this planet. If a superior species is to appear, it must come from human stock." J. A. Thomson declares:[121] "What is plain is that in spite of blind alleys, in spite of retrogression, in spite of lost races, life has been on the whole creeping upward. As age has succeeded age, nobler and finer individualities have appeared, with more mastery, freedom and mind."

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[120] E. G. Conklin: *Direction of Human Evolution*, 1921, p. 81.
[121] J. A. Thomson: *What Is Man*, 1924, p. 292.

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